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AUTHOR Colon, Jesus M.; Gonzalez, Jose R.
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ABSTRACT

In this evaluation of the first year of the Exemplary Career Education Project for K-12 in Puerto Rico, the results of testing and interviewing school personnel and students in grades 1-2 and 7-9 at six regional pilot sites are reported. Six areas of student development are recognized by the evaluation questions: self awareness, basic academic/vocational skills, awareness of work values, awareness of and knowledge about work, career decision-making skills, and work habits. Based on the analysis of responses which showed the project to be successful in all six areas, twelve recommendations to modify the program are made, concentrating on the following areas: (1) the program's expansion to other schools; (2) improvement and creation of curriculum materials and courses for second and third grades and junior and senior high schools; (3) scheduling of the pre- and post-tests for evaluation; (4) school personnel development; (5) the role of the career education component; (6) program supervision; and (7) participation by the evaluators in discussions of their findings. As background, general information about the project's implementation and its objectives are included as well as extensive details about the methodology used for the study: its design, instruments, data collection procedures, and data analysis. The appendix contains copies of the tests, the interview schedule, and the project proposal. (ELG)

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APRENDIENDO A SER : Alternativa para nuestra Juventud



Evaluation of the Exemplary Career
Education Comprehensive Program
in the Academic and the Vocational
and Technical Education Program
in Puerto Rico

by

The Psychological Services Corp.

Jesús M. Colón, Ed. D.

José R. González, Ph. D.

A Third Party Evaluation of the
Puerto Rico Career Education Project
For Fiscal Year 1975

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
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Submitted to the Department of Education,
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Hato Rey, Puerto Rico

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PREFACE

The Psychological Services Corp., Inc. would like to take this opportunity to thank Mrs. Zoraida Toro Torres, her staff and the other personnel of the six educational regions within the Department of Education for the cooperation and assistance extended to the third party evaluation team during the evaluation study.

In preparing this report, we benefited greatly from the contributions of our consultants, Dr. Ishver Bangdiwala, Professor of Statistics, College of Education, University of Puerto Rico, and Dr. Jack Hillsbrunner, President of Synectics, Inc., a management consulting firm. Dr. Bangdiwala conducted the statistical analysis and provided us with reliable statistical inferences. Dr. Hillsbrunner reviewed the curriculum for a group of twenty occupations in the Vocational Education Program.

We have prepared this report with the idea of evaluating the efforts for the implementation of a comprehensive career education program.

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I. INTRODUCTION

In January, 1975, the Psychological Services Corp., Inc. was selected to serve as the third party evaluator of the Exemplary Career Education Comprehensive Program in the Academic and the Vocational and Technical Education Program in Puerto Rico. The Psychological Services Corp., Inc. was asked to evaluate the activities of the Career Education Project during the first year of implementation which consisted of the testing of the career oriented curricula for the first and second grade levels, and from 7th to 9th grade levels, in the six regional sites selected in each of the six educational regions (under grant number O E G- 2-4- V E 001), a time frame extending from July, 1974, through July 1975.

The integration of the Career Education Concept into the whole system curricula is being the shot-in-the arm needed to revitalize a reeling public school system. Career Education will do away with general education, and will provide for the qualification of each secondary school student either to go on to higher education, or into immediate employment upon completion of secondary school. Thus, the Career Education approach is to reform and to refocus education so that what is taught in the classroom has a clear, demonstrable

bearing on the student's future plans , whether these plans be to find a job immediately , to go on to college or to enter the world of work for a time , and then return to education , and in any case to enable the student to go forward , secure in the knowledge that he or she is prepared to deal with the world on its own terms .

II. BACKGROUND OF PROJECT

A. Overall Planning for First-Year Implementation

The Commonwealth of Puerto Rico submitted for funding to the United States Office of Education (USOE) a proposal entitled "Development of a Comprehensive Model for Career Education in Puerto Rico". USOE recommended that a grant of \$194,800 be awarded to the Commonwealth of Puerto Rico for career education implementation planning for the period from July 1, 1973, to June, 1974. This planning grant year was to serve as a prelude to subsequent three-year effort (1974-1977) to integrate a comprehensive career education program into the K-12 curriculum in the public schools of Puerto Rico.

Although the planning activities for instituting a comprehensive career education program in Puerto Rico were scheduled for the full fiscal year 1974, in fact, only a little more than one half of this period was actually utilized.

Administratively, within the Department of Education the most significant action taken in regard to this project was the transfer of responsibility for integrating a comprehensive career education program in Puerto Rico from the Assistant Secretary for Vocational Education to the Assistant Secretary for the Regular Academic Program.

The timetable for the comprehensive career education project calls for the establishment of pilot programs in six educational districts during the fiscal 1975 grant year. The materials and procedures developed initially during the planning grant year were tested in the six educational regions. It is hoped that the materials tested will become the basis for the ultimate career education program to be instituted throughout the Commonwealth.

The Office of Career Education separates USOE activities into two categories: comprehensive career education projects and career education support system projects.¹ The planning grant was concerned with the former category, for which the Office of Career Education has identified the following objectives:

Activities for students throughout the various grade levels which

¹
U S O E, Career Education: Programs and Progress. Prepared by the Office of Career Education, April, 1974.

attempt to:

- (1) develop and expand career awareness;
- (2) provide opportunities for exploration and/or attainment
in careers of their choice;
- (3) provide career-oriented guidance counseling;
- (4) provide career placement services;
- (5) improve cognitive and ~~affective~~ performance through
restructuring the curriculum around a career development
theme;
- (6) provide training for educational personnel to enable them to
meet the preceding objectives.

The definition of career education for Puerto Rico has been formulated
by the project staff as follows:

At this point in time, Career Education is viewed
as an integral part of the educational process.
It focuses on impacting and obtaining knowledge,
attitudes, and skills related to the world of work,
self and career oriented decision making. It also
focuses on some of the ~~impacting~~ social, personal,
economic, cultural, and technological forces now
and as envisioned in the future.²

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Translation of Definition of Career Education in brochure entitled,
Career Education in Puerto Rico: Aprendiendo a Ser, Departament of
Education, Hato Rey, Puerto Rico, Undated.

The definition cited above implies a commitment to the objectives given for comprehensive career education projects.

The basic framework for the activities of the planning grant year was established by the Department of Education in an annual plan of work for 1973-74. This work plan presented goals, objectives, activities, time frames, personnel in charge and current state of implementation.

The efforts during the planning year were geared to the accomplishment of the following two objectives:

- (1) To bring together the development of all Career Education Projects so as to integrate their curriculum activities and program implementation into a meaningful, comprehensive and well developed career education effort.
- (2) To make available developed materials and activities to be tested in the schools involved in the project.

These two objectives, basically aim at infusing the island's K-12 curricula with career education concepts. The rationale for infusing career education content into the Commonwealth's Schools is compelling. Puerto Rico is undergoing a transition from an agrarian economy to a technological one. Furthermore, the island has a student dropout rate of 66 percent between the first grade and high school graduation.³

³ Department of Education of Puerto Rico. Datos del Sistema Educativo de Puerto Rico, 1975, page 5.

In addition, there is a reported unemployment rate of 16.2 percent.⁴ The real figure on unemployment is probably much higher, since the official percentage does not take into account those who are not actively seeking employment.

The significance of establishing a comprehensive career education program can, therefore, hardly be exaggerated, given these indigenous educational and economic conditions. Since career education seeks to increase curricular relevance and to prepare students either for the work complex and/or sound post-secondary career study upon graduation from senior high school, programatic outcomes of reduced dropout and unemployment rates was anticipated.

B. Purpose

The overall objective of this project is to continue the efforts being conducted for the development of a Comprehensive Career Education Curriculum Model for the Commonwealth of Puerto Rico's educational system. The end product will be a clearing house operation of educational materials for K thru 12 both in the regular academic and vocational and

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Department of Education of Puerto Rico. Puerto Rico Plan for Vocational, Technical and High Skills Education Program, June 1975, page. 2.

technical programs. It is expected that as a result of these efforts students will have the best opportunities to either continue studies or enter the world of work.

Specific Objectives

1. Gather all curriculum materials prepared at the different Career Education Projects and evaluate them according to common concepts, ideas and activities.
2. Develop a Comprehensive Career Education Model Curricula for both Regular and Vocational Programs from K-12 so that they would be easily adapted to the school system of the Commonwealth of Puerto Rico.
3. Provide for a career education curricula geared to the needs of the handicapped and the disadvantaged.
4. Test curriculum materials designed and disseminate them.
5. Develop, test, and disseminate curriculum materials in 40 occupations within the occupational clusters for the Vocational and Technical Education Program of the Commonwealth.
6. Define the role of the guidance counselor in the Career Education Curricula to adapt its role to the needs of Puerto Rico students.
7. Provide for in-service training to teachers and all school personnel involved in the preparation and testing of curriculum

materials for the Career Education Concept and the Extended School Year.

These objectives will be accomplished through three-year effort (1974-1977) to integrate a comprehensive career education program into the K-12 curriculum in the public schools of Puerto Rico.

A planning grant was awarded for career education implementation planning for the period from July 1, 1973, to June, 1974. The planning activities for instituting a comprehensive career education program in Puerto Rico were scheduled for the full fiscal year 1974.

Administratively, within the Department of Education, the most significant action taken in regard to this project was the transfer of responsibility for integrating a comprehensive career education program in Puerto Rico from the Assistant Secretary for Vocational Education to the Assistant Secretary for the Regular Academic Program.

A third party evaluation team was asked to evaluate the activities of the Career Education Project during its planning year, a time frame extending from June, 1973, through June, 1974. It was the conclusion of the evaluating team that the personnel of the career education project had made excellent progress during the planning grant year with respect to the general objectives for comprehensive career education projects identified by U S O E (and cited in an earlier section of this report).

The integration of the project at the Central Level and its establishment under the regular academic program were judged to be significant steps to facilitate coordinated infusion of occupational content throughout the K-12 curriculum. The evaluating team found the progress made particularly commendable. They viewed the curricular materials developed to be a significant contribution, both in terms of the breadth of subject coverage and in terms of the quality of the effort.⁵

The timetable for the comprehensive career education project was developed for the establishment of pilot programs in six educational districts of each educational regions of the State Department of Education during the fiscal 1975 grant year. The materials and procedures developed initially during the planning grant year were tested in these six regions, and it is expected to become the basis for the ultimate career education program to be instituted throughout the Commonwealth school system.

It is the purpose of this evaluation report to present the results of the pilot programs in the six educational districts during the fiscal 1975 grant year.

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Annapolis Research Corporation. A Ground Plan for Comprehensive Career Education Unfolds in Puerto Rico, July, 1974.

C. Limitations of the Evaluation Study

This evaluation study began in January 1975, when The Psychological Services Corp., Inc. was selected to serve as the third party evaluator of the Career Education Project. This delay affected to some extent the implementation of the evaluation design. Other limitations were the extraneous variables relevant to internal validity for a pre-test-post-test measuring. Beside these limitations, there were others related to delay in providing the list of students participating in the project. This forced the evaluators to delay the pre-test in some of the participating schools.

III. EVALUATION QUESTIONS ADDRESSED AND SUMMARY OF ANSWERS

In order to answer the specific evaluation questions it was necessary to use a pre/post design, since relational or difference terms of this type requires at least two measures, one of which is taken prior to program exposure, or prior to exposure to some significant portion of the program; the other measure would, of course, be taken after such exposure. Since program exposure must occur over a significant period of time even under the best of circumstances, simply taking pre/post measures of the exposed students and calculating the differences between these measures would not necessarily indicate the effects of the program. This is due to the fact that during the interval between the measure, the students undergo other "treatments" including continuing maturation and the synthesizing of experiences. Thus, a change in the measure cannot logically be attributed to the program. In this evaluation study a further limitation should be mentioned; the time elapsed between the pre-test and post-test was too short to expect a significant change. The fact that the evaluator began the study in January, the pre-test was done at the beginning of the second semester instead of the beginning of the academic year.

The usual solution to this design problem is to use a comparison group, this is to obtain the same pre/post measures, with the same time interval between them, from students who have not been exposed to the program.

Even with the limitations mentioned, the evaluators considered that the program had significant impact on the participating schools. The evaluators came to that conclusion from data collected from participating teachers, counselors, curriculum technicians, and school principals.

A cognitive test of the world of work-primary level, was administered to a sample of first and second grade students of the participating schools. An analysis of pre/post test mean variance of the test indicated that among all groups of first grade students of the six participating schools there was a significant difference at the 5% level. Only in two schools, Valenciano Second Unit in Juncos and Dr. Gustavo Muñoz Díaz in Aguas Buenas, it was found not significant difference. The same test was administered to second grade students of the same participating schools. Only in three of the six schools, Valenciano Second Unit, Dajaos Second Unit and José Rodríguez Soto, it was found significant difference. It was found not significant difference in all the six schools put together. Although the scores were relatively high there was not significant dif-

ference between pre-and post test in all the six schools together.

As it was mentioned before , apparently the fact that the time interval was too short between the pre and post test had something to do with the difference.

In general , it can be said that the first and second grade students in the six schools gained knowledge related to the world of work in the integrated career education curriculum in Spanish , Social Studies , and Mathematics .

The result of the analysis of pre/post test mean variance on the Cognitive Test Related to the World of Work , Intermediate Level , indicated a significant difference at the 1% level among all groups of Junior High Students of the participating schools .

The analysis of pre/post test mean variance on the Attitude Inventory Toward the World of Work- Quinmester (7-9) Students showed a significant difference in all groups of students of the six participating schools .

The analysis of the data indicated a significant change in attitudes toward the world of work among Junior High Students of the six participating pilot schools . Also a significant gain in knowledge related to the world of work was found among first grade students of the six participating schools . The same conclusion was arrived in respect to the second grade students for only three of the six participating schools as was stated before .

Indirect information was secured from teachers, school principals, curriculum technicians and school counselors. An interview schedule was used with the six outcome area and specific evaluation questions based on career education objectives in terms of student outcome statements. A Likert-scale was developed for indicating the level of increase for each item included. With the data collected a descriptive analysis was conducted. To some extent the findings of this analysis corroborated the findings presented based on the data collected with other instrument.

The school personnel interviewed were asked questions to determine if the students had increased in self-awareness. Out of all the school personnel interviewed (N = 38) 74% indicated much increase or a great deal of increase, while only 2% indicated a little increase. When asked if the students had increased their basic academic/ vocational skills, they expressed that 72% had increased much or a great deal, while 26% indicated a regular increase, and only 3% a little increase. In general, students have increased their academic/vocational skills as it was expressed by teachers, school principals, counselors and curriculum technicians.

Another question asked was in relation to what extent students have increased awareness of work values. Around 52% answered that students had increased much or a great deal, while only 15% mentioned that students had increased regular or little. It was evident that the

students have increased their awareness of work values. They were also asked if the students had increased their awareness of and knowledge about work; 70% indicated much or a great deal of increase, 25% regular increase, and only 5% little increase. It was found a significant increase in the students' awareness of and knowledge about work. Another outcome area of interest was increase in career decision-making skills. Sixty-two percent of the personnel asked mentioned that the students had increased much or a great deal, and 30% regular increase. Only 3% believed that students had increased a little. These findings were corroborated with the Check List of Interest that revealed that students had changed their vocational interest during the period investigated. When asked if the students had improved their work habits, 65% mentioned that the students had improved much or a great deal their work habits, 30% said that they had regular improvement, 3% little improvement and only 2% not improved at all. They were asked about how much increase the students had in work seeking and work getting skills. Forty five percent believed that the students had increased much or a great deal, 41% regular increase, 5% little increase and only 4% not increase at all. This out-come area was the less increased compared with the other outcome areas. It was evident that the students have increased much or a great deal in the six outcome-areas.

A Check List of Interests toward different types of work activities was administered following the before and after design. The analysis of

the data showed that the students changed their interests toward different types of work activities. It can be said that the career education integrated curriculum contributed to change their work interests and to determine the type of work they like to do best. This information was filed in the student's records for follow-up purpose.

In general, it can be said that the career education integrated curriculum was effective in the six outcome areas described before. It is evident that this curriculum is of meaning and relevance to the students.

IV. RECOMMENDATIONS FOR PROGRAM MODIFICATIONS

The following recommendations can be useful for program change or redirection:

1. Comparison schools should be selected in the six educational regions. Comparisons between the gains made by the high-exposure group and those made by the low exposure group would then provide the basic data needed for assessing whether or not the program had had any impact on the outcome measures, providing that there are meaningful differences between the treatment received by the high-exposure group and those received by the low-exposure group.
2. The program should be extended to other schools districts. The curriculum materials tested was of great impact on the student's attitudes, knowledge and skills related to the world of work and self awareness.
3. Additional curriculum materials developed for third grade and Junior High School should be ready for testing in all the selected schools.
4. Special attention should be given to the curriculum material for second grade students. Re-test of that material should be made in the same schools where not significant change was found.

5. The pre-test should be made at the beginning of September and the post-test should be made during April. That will give more treatment time interval.
6. In-service education activities are recommended to teachers and school principals where the program is going to be extended.
7. The evaluation findings should be discussed with the participating school personnel.
8. The Career Education Component at the Central Office is very efficient and has qualified personnel to give guidance and effective supervision to the program. We recommend to have additional curriculum technicians if an extension of the program is contemplated.
9. The administrative set up of the Career Education Component is adequate. The fact that the transfer of responsibility for integrating a comprehensive career education program from the Assistant Secretary for Vocational Education to the Assistant Secretary for the Regular Academic Program, was a significant action and a great help in integrating a career education program. This administrative set up should continue in the same way it is at present.
10. We recommend the continuation of the effective supervision being given to the program. The orientation and help given to the teachers really made a difference in the effectiveness of the program.

11. Finally, we strongly recommend that the evaluation party participates in the discussion of the evaluation findings with the school personnel and the Career Education Component at the Central Office.
12. We also strongly suggest the desirability of introducing at the High School level an in depth course in career exploration and work seeking skills, based on Puerto Rico labor working needs.

V.. OUTCOME QUESTION TREATMENT GROUP MATRIX

A completed Treatment Group-Outcome Area Table is presented below as it was developed at the beginning of this evaluation.

OUTCOME QUESTION / TREATMENT GROUP MATRIX

Outcome Questions	Treatment Group										
	I-II	I-II	I-II	I-II	I-II	I-II	7-9	7-9	7-9	7-9	7-9
	Rosa Molinari	Charles H. Terry	S. U. Valenciana	Muñoz Diaz	S. U. Dajalos	Rodriguez Soto	Julieta A. Cassey	Manuel H. Barreto	Fulgencio Piñero	José A. Dávila	Rafael Nicolao
I. Increased Self Awareness											
A. Have students increased their ability to describe their own current abilities and limitations ?	x	x	x	x	x	x	x	x	x	x	x
B. Have students increased their ability to describe their own current interest and values ?											
C. Do students display more positive attitudes toward themselves ?											
D. Have students increased their recognition that social, economic, educational, and cultural forces influence their development ?											

OUTCOME QUESTION/TREATMENT GROUP MATRIX

Outcome Questions	Treatment Group	I-II	I-II	I-II	I-II	I-II	I-II	7-9	7-9	7-9	7-9	7-9	7-9	7-9
		Rosa Mollinari	Charles H. Terry	S. U. Valen-	Muñoz Díaz	S. U. Dajao	Rodríguez Soto	Julieta A. Cassey	Manuel H. Barreto	Fulgencio Piñero	José A. Dávila	Rafael Nicolao	Agripino Seda	
II. Increased Basic Academic/Vocational Skills		x	x	x	x	x	x	x	x	x	x	x	x	x
A. Have students increased their level of generally useful numerical skills?														
B. Have students increased their level of generally useful communication skills?														
C. Have students increased their level of generally useful information processing skills?														
D. Have students increased their level of generally useful decision-making skills?														
E. Have students increased their level of generally useful interpersonal skills?														

OUTCOME QUESTION/TREATMENT GROUP MATRIX

Outcome Questions	Treatment Group	I-II	I-II	I-II	I-II	I-II	I-II	7-9	7-9	7-9	7-9	7-9	7-9
		Rosa Moll-nari	Terry Charles H. clana	U.S. Valen-	Muñoz Díaz	S. U. Dajao	Rodríguez Soto	Julieta A. Cassey	Manuel H. Barreto	Fulgencio Piñeiro	José A. Dávila	Rafael Nicolao	Agripino Seda
III. Increased Awareness of Work Values		x	x	x	x	x	x	x	x	x	x	x	x
A. Have students increased their recognition of the bases of various work values ?													
Increased Desire to Engage in Paid and/or Unpaid Work													
B. Do students possess more positive attitudes toward paid and unpaid work ?													

OUTCOME QUESTION/TREATMENT GROUP MATRIX

Outcome Questions	Treatment Group	I-II Rosa Molinari	I-II Charles H. Terry	I-II S.U. Valenciana	I-II Muñoz Díaz	I-II S.U. Dajao	I-II Rodríguez Soto	I-II Juliette A. Cassey	I-II Manuel H. Barreto	I-II Fulgencio Piñero	I-II José A. Dávila	I-II Rafael Nicolao	I-II Agripino Seda
IV. Increased Awareness of and Knowledge About Work													
A. Have students increased their knowledge regarding the major duties and required abilities of different types of paid and unpaid work?		x	x	x	x	x	x	x	x	x	x	x	x
B. Have students increased their knowledge of differences in work conditions and life styles associated with different types of paid and unpaid work?													
C. Have students increased their knowledge of entry requirements for major types of paid and unpaid work?													
D. Have students increased their knowledge of impact of social and technological change in paid and unpaid work?													
E. Have students increased their knowledge of the important factors that affect work success and satisfaction?													

✓ - Not applicable for second grade student in this schools.

OUTCOME QUESTION/TREATMENT GROUP MATRIX

Outcome Questions	Treatment Group	I-II Rosa	I-II Terry	I-II Charles H.	I-II U. S. S. Valencia	I-II Munoz Diaz	I-II S. U. Dadaos	I-II Rodriguez Soto	7-9 Juliete A. Cassey	7-9 Manuel H. Barreto	7-9 Fulgencio Fiteiro	7-9 José A. Dávila	7-9 Rafael Nicolao	7-9 Abrigino Seda
V. Increased Career Decision-making skills.														
A. Have students increased their ability to associate their own abilities and limitations with possible success in present or future paid and unpaid work?		x	x	x	x	x	x	x	x	x	x	x	x	x
B. Have students increased their ability to relate their personal interests and values to types of paid and unpaid work and their associated life-styles?														
C. Have students increased their ability to (a) identify (b) locate and (c) utilize sources of information to solve career decision-making problems?														
D. Have students increased their ability to determine the potential for future advancement/ personal growth in work of their choosing?														
E. Have students increased their knowledge of the steps to be taken and the factors to be considered in career planning?														
F. Have students increased their active involvement in career decision-making?														

OUTCOME QUESTION/TREATMENT FOR MATRIX

Outcome Questions	Treatment Group	I-II	I-II	I-II	I-II	I-II	I-II	I-II	I-II	I-II	I-II	I-II	I-II
		Rosa Mollinari	Charles H. Terry	U. Valencia	Munoz Diaz	U. De laas	Rodriguez Soto	Juliete A. Cassey	Manuel H. Barreto	Fulgencio Pifreiro	Jose A. Devila	Rafael Nicolao	Agripino Seda
VI. Improved Work Habits													
A. Are students able to plan work effectively?													
B. Are students more adaptable to varied work situations?													
C. Do students have a more positive attitude toward the concepts of quality in relation to a work task?		x	x	x	x	x	x	x	x	x	x	x	x
D. Do students have a more positive attitude toward conservation of environmental and human resources in accomplishing work tasks?													
E. Do students have a more positive attitude toward responsibility for their own behavior and accomplishment of self-imposed work tasks?													
F. Do students demonstrate an increased desire for continuous learning both in school and out?													
VII. Increased Work Seeking and Work Getting Skills													
A. Have students increased their ability to a) identify, b) locate, and c) utilize sources that contain information about paid and unpaid work?									x	x	x	x	x
B. Have students increased their level of skills required in a) applying for, and b) accepting work?													

VI. METHODOLOGY

A description of the procedure followed and of the methods and techniques utilized is presented here.

A. Evaluation Design

Every evaluating design must begin with the formulation of the objectives pursued by the project. Having this in mind, a design based on the objectives of the project was elaborated. The broad limits of what to be included in the career education treatment or activities provided students were established in the overview of the project. This overview of the program defines in general terms what facet of the school system was to be evaluated. It was determined that the evaluation should encompass all career education activities in the testing of the career education oriented curricula for the first and second grade levels, and from 9th and 12th grade levels, in the six regional sites selected in each of the six educational regions. The project implementation specialists at the Central Office examined together with the Vocational Guidance Director the role of the guidance counselor to adapt its role to Puerto Rico's needs in Career Education. A curriculum coordinator at the Vocational and Technical Education Program coordinated the curriculum development of a group of twenty occupations that were revised.

A second step was the development of an Outcome-Question/Treatment Group Matrix consisting of a series of tasks leading to the identification of

the expected relationship between the student outcome objectives of career education, the activities or treatments which led to these outcomes and the students who recieved those treatments.

The activity areas were knowledge of self, world of work and occupational decision-making. The specific treatments were:

- (1) curriculum infusion; (material in Mathematics, Spanish and Social Studies).
- (2) career education field trips;
- (3) visitors in the classroom to talk about their jobs;
- (4) use of special career materials provided by Career Education Component at the Central Office;
- (5) group sessions where the students described, orally, graphically and through simulations, different occupations, their personal career preferences, the characteristics desirable for entry into different careers, and which of these characteristics they personally possessed;
- (6) group sessions with the counselor.

Various tables were developed such as Activity- Treatments- Participants, Outcome-Questions/Treatments Group Matrix and others:¹

¹ For details, see the Evaluation Design Appendix A.

B. Areas Evaluated

Six outcome areas were evaluated as follows:

1. self awareness
2. basic academic/vocational skills
3. awareness of work values
4. awareness of and knowledge about work
5. competency in career decision-making skills
6. good work habits

The specific treatment mentioned before was applied in each pilot school in relation to the six outcome areas enumerated above.

C. Sample Design

The students tested were a representative sample of all students enrolled in first and second grades of the elementary level and Junior High School of the six school districts selected in each of the six educational regions for the school year 1974-75.

Proportional stratified samples were drawn for the elementary and secondary levels ($N = 100$ for each level). The random selection of the n_h elements out of the N_h in each stratum was made by a separate random choice with equal probabilities among all the students. The students were listed separately for each of the six strata (each school) of the six educational

regions of the Department of Education. The number of students to be selected in each of the Strata was obtained, $n_h = W_h n$ (as shown on the last lines on the following tables).

TABLE NUM.1

SAMPLING DESIGN- ELEMENTARY SCHOOLS

I II GRADES

Stratified Proportional
Sample Design

	Symbol	Hatillo		Mayaguez		Juncos		Aguas Buenas		Dajaos		Guánica		Total Students	
		Rosa Molinari		Charles T. Irizarry		S. Unidad Valenciano		Dr. Gustavo Muñoz Díaz		S. Unidad Dajaos		José Rodríguez Soto			
		1		2		3		4		5		6			
Stratum number	h	Grade I	Grade II	Grade I	Grade II	Grade I	Grade II	Grade I	Grade II	Grade I	Grade II	Grade I	Grade II	Grade I	Grade II
Number of students	N_h	30	33	32	26	31	30	37	38	22	20	32	40	184	187
Relative weight	W_h	.16	.18	.17	.14	.17	.16	.20	.20	.12	.10	.18	.22	1.00	1.00
Number of students to be selected	n_h	16	18	17	14	17	16	20	20	12	10	18	22	100	100

TABLE NUM. 2
SAMPLING DESIGN -JUNIOR HIGH SCHOOL

	Symbol	Hatillo	Mayaguez	Juncos	Aguas Buenas	Guánica	
Stratum number	h	1	2	3	4	5	Total
Number of Student	N_h	180	135	80	183	182	760
Relative Weight	W_h	.23	.18	.10	.25	.24	1.00
Number of Students to be selected	n_h	23	18	10	25	24	100

D. INSTRUMENTS FOR THE COLLECTION OF DATA

In this evaluation a variety of instruments were used. The evaluators considered available instruments according to the U S O E review of several data collection instruments which attempt to measure student career education outcomes.² Due to the fact that our student population at this school level do not have the necessary English knowledge, the evaluators had to develop their own local instruments in Spanish. The other reason for not using available instruments was that the evaluation design called for securing information from other indirect sources such as teachers, counselors and supervisors. Evaluators had to develop their instruments, except one interest check list that was available at the Department of Labor. Since the evaluators have the technical knowledge in developing and validating this kind of instruments it was not a mayor difficulty although they had a little delay in getting the instruments ready. To maximize content validity it was necessary to delineate the subject matter or outcome area, which the test was supposed to measure, followed by a listing of specific content areas which the participating teachers planed to cover within the outcome area. The test items were constructed around the specific topics or concepts which represent the more important teaching objectives.

2

U.S.O.E., Draft Guidelines for the Evaluation of Career Education Programs, Washington, D.C. 1974, pp. 61-62.

The instruments developed were geared to obtain data from three different sources as follows:

1. the provider of the treatment;
2. the recipient of the treatment;
3. an observer of the treatment.

The following types of instruments were used:

1. questionnaires
2. interview schedules
3. staff reporting forms
4. document review summary form

The following is a description of the instruments developed and used in the collection of data:

1. Interview Schedule

This instrument was used for interviewing school personnel (teachers, school principals, curriculum technicians, and school counselor) participating in the program. The purpose of this instrument was to get information from indirect sources about how much increase they considered the students had in relation to the seven outcome areas. The instrument consists of specific questions with five levels of increase. The specific questions in each area are based on the objectives developed by Career Education in the U.S.O.E. in terms of student outcome statements.³

³ Ibid. A copy of the Interview Schedule is presented in Appendix B.

2. Prueba de conocimiento del mundo ocupacional, Serie "Career Education". Nivel Primario (Grados 1-3). Forma A (Test of Knowledge about the World of Work, Career Education Series, Primary Level, Grades 1-3, Form A.)

This test was developed in terms of the content of the guides for teachers written by the Career Education staff at the Central Office of the Department of Education. This staff has developed three guides for the First Grade in the subjects of Social Studies, Spanish and Mathematics, and two guides for the Second Grade in the areas of Spanish and Mathematics, in which they incorporate the career education concept. The guides cover three main topics: (1) knowledge of self; (2) the world of work; and (3) occupational decisions. The discussion of each topic is followed by a set of suggested educational activities, which are also related to the different textbooks used in the particular grade.

The test itself follows proportionately the educational units presented in the guides. It consists of eleven parts, as follows:*

Part I: -Mark the picture which represents the occupation mentioned in the frame at the left.

Part II: -Mark the picture which represents the tool or the object most related to the worker presented in the frame at the left.

*A copy of the test is presented in Appendix C.

Part III- Mark the pictures which represent occupations derived from the dairy industry.

Part IV- Mark the pictures which represent occupations derived from the construction industry.

Part V- Mark the pictures which represent occupations related with agriculture.

Part VI- Mark the pictures which represent typical occupations of the country.

Part VII- Mark the pictures which represent typical occupations of the city

Part VIII- Mark the pictures which represent occupations related with health

Part IX- Mark the pictures which represent occupations of public service

Part X- Mark the pictures which represent occupations requiring college preparation (university studies)

Part XI- Mark the pictures which represent occupations requiring much knowledge of weight and numbers.

The test was tried out in a group of first and second grade students before it was applied the career education students. It is answered in the same test booklet.

Prueba de Conocimiento relacionada con el mundo ocupacional.(Test of Knowledge Related to the World of Work).

This test consists of three parts, containing 60 multiple choice items in all. The items were drawn from two different resource educational materials used in the "Personal, Educational, and Occupational Guidance" course:

(1) the teacher's guide for that course, prepared by the Career Education Staff, and (2) a booklet written in Spanish by a Latin American teacher, Ismael Vidales Delgado, and published by Editorial Trillas, México. This booklet is also made available to teachers in charge of this course.

Part I of the test consists of 25 items relating employees to tools, equipment, and working conditions. Part II contains 26 items, requiring the students to identify the employee which belongs to a certain occupational cluster. In Part III, consisting of 9 items, the student is given a set of information related to occupational interests, aptitudes, abilities and skills and he is required to identify the employee who needs that set of characteristics in order to be successful in his occupation. The list of employees covers professionals, white collars, skilled workers, and others.

Answers are marked on a separate answer sheet to facilitate scoring.

A copy of the test is presented in Appendix D.

Inventario de Actitudes hacia el mundo ocupacional. (Inventory of Attitudes Toward the World of Work).

This self-administering attitude inventory consists of 75 statements about the world of work, in which the subject responds with a "YES" answer if he is in agreement with the statement; with a "NO" answer if he disagrees; or with a "I" answer if he is undecided. Each statement represents a positive or negative attitude toward the world of work.

The attitudinal statements are related to the topics discussed in the course "Personnal, Educational, and Occupational Guidance", that the Career Education student has to take in his Junior High School quinmester program. The Career Education Staff has prepared a guide for teachers to be used in this course.

The answers are marked on a separate answer sheet to facilitate the scoring process.

A copy of the inventory is presented in Appendix E.

Lista de Cotejo de Intereses (Interest Check List)

This is a translation of the English version of the Interest Check List developed by the U. S. Employment Service. The translation was made by the Employment Service Division of the Bureau of Employment Security, Department of Labor of Puerto Rico.

This instrument consists of 44 blocks of occupational activities, all of them related to the Dictionary of Occupational Titles Nomenclature, in which the subject makes a check mark under "Yes" if he likes to perform that specific activity; under "NO" if he does not like to perform the activity, or under "?" if he is undecided.

After finishing the check list, the subject is required to go back and make a double check mark to those activities (at least three of them) which he likes most.

A copy of the Check List is presented in Appendix F.

E. Procedures for the Collection of Data

In view of the fact that the evaluation design was constructed to collect data around three activity areas-knowledge of self, world of work and occupational decision making - it was necessary to collect different types of data: (1) data related to the student's knowledge about the world of work; (2) attitudes toward the world of work; and (3) interests related to the world of work. The first type of data was collected by a cognitive test. Attitudes and interests toward the world of work were collected by two inventories. An interview schedule was used to collect data related to the six outcome areas: (1) self-awareness; (2) basic academic/vocational skills; (3) awareness of work values; (4) awareness of and knowledge about work; (5) competency in career decision-making skills; and (6) good work habits.

In the actual interviewing situation no special problems were encountered. Rapport was generally good, as judged from the interviewer's impressions.

In general, the only difficulty encountered was mortality of subjects in the various participating schools.

F. Plan for Analysis

The specification of an analysis plan usually refers to the selection of the statistical method to be employed in analyzing the data collected. Every statistical procedure for analyzing data is designed to answer a specific type of analytic question and is based upon certain assumptions

regarding the nature of the data and the evaluation design.

The evaluation design called for the analysis of Pre-and Post-Test mean Variance on mean scores of student samples. Mean variance between all groups of students were also estimated.

F. Statistic was used for testing hypothesis that the $(TG)_{ik}$ interaction was zero. Later the individual group comparison was made by using a one tailed t-test using the common variance. An analysis of variance with interaction of test and students within the groups was worked out. Other descriptive statistics were used in analyzing other required data.

VI. DETAILED RESULTS

The following tables displaying the data that were collected for the evaluation are presented below. It is also presented a detailed description of the analysis of data that was worked out.

TABLE 3- ANALYSIS OF PRE -AND POST-TEST MEAN VARIANCE ON THE
 "PRUEBA DE CONOCIMIENTO DEL MUNDO OCUPACIONAL"
 CAREER EDUCATION SERIES-FIRST GRADE STUDENTS

Place	Medn		Dif- ference	Signifi- cance
	Pre- Test	Post- Test		
Rosa Molinari School- Hatillo	28.45	33.64	5.99	**
Charles T. Irizarry School-Mayaguez	27.50	35.38	7.88	**
S. U. Valenciano School-Juncos	36.06	34.69	-1.37	NS
Dr. Gustavo Muñoz Díaz School- Aguas Buenas	38.06	37.41	- .65	NS
S. U. Dajao School-Bayamón Sur	19.90	33.90	14.00	**
José Rodríguez Soto School- Guánica	32.13	44.80	12.67	**
All groups	31.27	36.92	5.65	**

**Significant at the 5% level

NS- Not significant

TABLE 4 - ANALYSIS OF PRE-AND POST-TEST MEAN VARIANCE ON THE
 "PRUEBA DE CONOCIMIENTO DEL MUNDO OCUPACIONAL"
 CAREER EDUCATION SERIES-SECOND GRADE STUDENTS

Place	Mean		Dif - ference	Signifi- cance
	Pre - Test	Post- Test		
Rosa Molinari School- Hatillo	39.58	39.33	-.25	NS
Charles T. Irizarry School-Mayaguez	40.92	40.46	-.46	NS
S. U. Valenciano School-Juncos	44.13	47.20	+3.07	**
Dr. Gustavo Muñoz Díaz School- Aguas Buenas	40.50	39.19	-1.31	NS
S. U. Dajaos School-Bayamón Sur	39.71	44.57	4.86	**
José Rodriguez Soto School-Guánica	44.32	45.82	1.50	*
All groups	42.00	42.98	-.98	NS

*Significance at the 1% level

**Significant at the 5% level

NS -Not significant

TABLE 5 - ANALYSIS OF PRE AND POST TEST MEAN VARIANCE ON THE
 "PRUEBA DE CONOCIMIENTO RELACIONADA CON EL
 MUNDO OCUPACIONAL"- CAREER EDUCATION PROJECT
 QUINMESTER (7-9) STUDENTS

Place	Mean		Dif- ference	Signifi- cance
	Pre- Test	Post- Test		
Agripina Seda School-Guánica	43.29	47.46	4.17	**
Rafael Nicolao School-Aguas Buenas	40.00	42.37	2.37	**
Juliete A. Cassey School-Hatillo	39.56	39.00	- .56	NS
Fulgencio Piñeiro School- Juncos	33.75	39.63	5.88	**
Manuel H. Barreto School-Mayaguez	44.28	47.11	3.83	**
All grous	41.13	43.80	2.67	**

**Significant at the 5% level

NS- Not significant

TABLE 6 - ANALYSIS OF PRE -AND POST TEST MEAN VARIANCE ON THE
 "INVENTARIO DE ACTITUDES HACIA EL MUNDO OCUPACIONAL"
 QUINMESTER (7-9) STUDENTS

Place	Mean		Dif- ference	Signifi- cance
	Pre- Test	Post- Test		
Agripina Seda School-Guánica	57.50	59.71	2.21	*
Rafael Nicolao School -Aguas Buenas	51.89	57.58	5.69	**
Juliete A. Cassey School-Hatillo	50.50	53.67	3.17	*
Fulgencio Piñeiro School-Juncos	39.50	53.88	14.38	**
Manuel H. Barreto School-Mayaguez	59.89	63.11	3.22	**
All groups	53.67	58.16	4.49	**

*Significant at the 1% level

** Significant at the 5% level

Analysis of data:

The results of the pre-test and post-test to different groups of students in each grade or level were analysed using the following mathematical model:

- (1) For each group in each grade:

$$Y_{ij} = \mu_{ij} + T_i + S_j + e_{ij}$$

Where Y_{ij} = individual score of j^{th} student in the i^{th} Test

μ_{ij} = the general mean effect

T_i = Score effect in the i^{th} Test (i = Pre-test; Post-test)

S_j = Score effect of j^{th} Student ($j = 1, 2, \dots, n$), n being the number of students in the group, and

e_{ij} = the random effect, which are adding and follows a Normal Distribution with mean error effect equal to zero and common variance σ_e^2

- (2) For combined analysis of all groups within the grade:

$$Y_{ijk} = \mu_{ijk} + T_i + G_k + (TG)_{ik} + S_{jk} + T_i(S_{jk})$$

Where Y_{ijk} = individual score of j^{th} student of the k^{th} group in the i^{th} test

μ_{ijk} = general mean effect

T_i = score effect in the i^{th} Test (i = Pre and Post-tests)

G_k = effect of the group (k = Hatillo, Guánica, etc.)

$(TG)_{ik}$ = effect of interaction between Test and Group

S_{jk} = effect of j^{th} student within the k^{th} group

and

$T_i (S_{jk})$ = effect of interaction of test with students within the group

The factor $T_i (S_{jk})$ is the error effect $e_i (jk)$ which is additive and follows a normal distribution with mean zero and common variance. σ^2

The test of the hypothesis that the $(TG)_{ik}$ interaction is zero was performed by using the F- statistic.

$$F = \frac{\text{Mean Span estimate of } (TG)_{ik} \text{ Interaction}}{\text{Random error Mean Span Estimate}}$$

Later the individual group comparison was made by using a One Tailed t-test using the common variance. In applying both the tests, the necessary weights (W_k) were utilized for adjusting the disproportionate sampling of the k individual finite populations.

The number of degrees of freedom for various sources of variation were assigned as follows:

<u>Source of Variation</u>	<u>Number of degrees of freedom</u>
Tests	1
Groups	(k-1)
Test x Group Interaction	(k-1)
Students within group	(n-k)
Test x students within group interaction	<u>(n-k)</u>
Total	2n-1

Grade I

The six groups of pupils which came from 6 different schools (one from each) of Hatillo, Guánica, Mayaguez, Aguas Buenas, Juncos and Barrio Dajaos of Bayamón. The test given was Prueba de conocimiento del mundo ocupacional, to evaluate the "knowledge" (conocimiento) -achievement during the period of the program. A pretest and post-test were given to each group.

In all the total population of these pupils was 184 and the sample amounted to 85 as shown in the following table:

Group	No. of pupils in Population	No. of pupils in sample
Hatillo	30	11
Mayaguez	32	16
Juncos	31	16
Aguas Buenas	37	17
Dajaos	22	10
Guánica	32	15
Total	184	85

The technique of Analysis of Variance (ANOVA) with interaction was applied to compare the results of the pre-test and post-test administered to the 6 groups.

The average scores of the students in the pre-test and post-test are summarized below indicating the statistical significance of the differences in each group and the overall difference of all the groups combined:

Group	Sample Size	Mean		Difference (Post-Pre)	Statistical Significance
		Pre-test	Post-Test		
Hatillo	11	28.45	33.64	✓ 5.19	Significant at 1% level
Guánica	15	32.13	44.80	✓ 12.67	Significant at 1% level
Mayaguez	16	27.50	35.38	✓ 7.88	Significant at 1% level
Aguas Buenas	17	38.06	37.41	- 0.65	Not significant at 5% level
Juncos	16	36.06	34.69	- 1.37	Not significant at 5% level
Dajao	10	19.90	33.90	✓ 14.00	Significant at 1% level
All groups	85	31.27	36.92	✓ 5.65	Significant at 1% level

The adjusted common variance of the six groups was 36,4895.

As can be seen from the above comparison, the 6 groups on an average gained 5.65 points in the post-test over the pre-test. The gain is shown to be highly significant (using one percent level of probability). Four of the 6 groups indicated significant increase while the group in Aguas Buenas and the one in Juncos stayed almost equal.

Grade 2

For grade 2, there were six groups with a total population of 187 and the sample size of 85 pupils as shown below:

Group	No. of pupils in Population	No. of pupils in Sample
Hatillo	33	12
Dajaos	20	7
Aguas Buenas	38	16
Mayaguez	26	13
Guánica	40	22
Juncos	<u>30</u>	<u>15</u>
Total	187	85

The test administered was Prueba de conocimiento del mundo ocupacional to evaluate "knowledge" or achievement (conocimiento) during the period of the program. A pre-test and a post-test were given to each group of students. An analysis of variance with interaction of test and students within the groups was worked out. The resulting statistical test indicated no significant gain in the post test score (at 5% probability level) in the overall average scores of the 6 groups combined, the post-test average score being 42.98 compared with the pre-test average of 42.00. Individually, however, the three groups showed

significant gains (two at 1 percent level and one at 5 percent) while the others three groups did not show any gain (at even 5% level). The group averages and the differences are shown below:

Group	Sample Size	Mean Score		Difference (Post-Pre)	Statistical Significance
		Pre-test	Post-test		
Hatillo	12	39.58	39.33	-0.25	Not significant at 5%
Dajaos	7	39.71	44.57	✓ 4.86	Significant at 1%
Aguas Buenas	16	40.50	39.19	- 1.31	Not significant at 5%
Mayaguez	13	40.92	40.46	-0.46	Not significant at 5%
Guánica	22	44.32	45.82	✓ 1.50	Not significant at 5%
Juncos	15	44.13	47.20	✓ 3.07	Significant at 1%
All groups	85	42.00	42.98	✓ 0.98	Not significant at 5%

The adjusted common variance estimated was 17.3314. For individual comparison, one tailed test was applied.

Quinmester groups

For this part of evaluation, the quinmester population consisted of 5 groups, one from each of the 5 places, namely, Juncos, Aguas Buenas, Hatillo, Mayaguez and Guánica. The total population of pupils in the program was 760. The sample size was 87. The following table shows the population and sample for individual groups.

Group	No. of pupils in Population	No. of pupils in Sample
Juncos	80	8
Aguas Buenas	183	19
Hatillo	180	18
Mayaguez	135	18
Guánica	<u>182</u>	<u>24</u>
Total	760	87

Two different tests were applied to the selected sample groups. One was the test to measure the attitude of the students in the program and the other was to measure the "knowledge" (conocimiento), achievement. Both the tests were applied before (pretest) and after (post-test) the program. The difference in the scores of the two tests (post-pre) measures the change in the two variables during the length of the program. In the following are summarized the results of these two tests:

(A) knowledge - (achievement)

The analysis of the scores obtained by the students in the sample in the pretest and the post test indicated a highly significant (at 1% probability level) gain in the average score of the 5 groups. The gain was 2.65 points on an average. Four groups out of the 5 in this study showed highly significant gain. The averages are summarized below:

Knowledge (Achievement)

Group	Sample Size	Mean Score		Difference (Post-Pre)	Statistical Significance
		Pretest	Post test		
Juncos	8	33.75	39.63	✓ 5.98	Significant at 1%
Aguas Buenas	19	40.00	42.37	✓ 2.37	Significant at 1%
Hatillo	18	39.56	39.00	-0.56	Not significant at 5%
Mayaguez	18	44.28	47.11	✓ 2.83	Significant at 1%
Guánica	24	43.29	47.46	✓ 4.17	Significant at 1%
All groups	87	41.13	43.80	✓ 2.67	Significant at 1%

The adjusted common variance was estimated to be 10.6775. For individual comparison, a one-tailed test was used.

(B) Attitude Score

The average scores of attitude towards the world of work are summarized below for individual groups:

Group	Sample Size	Mean Score		Difference (Post-Pre)	Statistical Significance
		Pre-test	Post-test		
Juncos	8	39.50	53.88	✓ 14.38	Significant at 1%
Aguas Buenas	19	51.89	57.58	✓ 5.69	Significant at 1%
Hatillo	18	50.50	53.67	✓ 3.17	Significant at 5%
Mayaguez	18	59.89	63.11	✓ 3.22	Significant at 1%
Guánica	24	57.50	59.71	✓ 2.21	Significant at 5%
All groups	87	53.67	58.16	✓ 4.49	Significant at 1%

The overall mean attitude scores had highly significant differences (at 1% level) for the 5 groups combined. Three groups (Juncos, Aguas Buenas, and Mayaguez) showed significant differences at 1 percent while the other two (Hatillo and Guánica) showed significant gains at 5% level.

The estimate of the adjusted common variance was 22.78. For individual comparison, one-tailed tests were used.

INTERVIEW SCHEDULE EVALUATION OF AN EXEMPLARY CAREER EDUCATION PROGRAM

Category of Person Interviewed

Tabulation

19 Teacher

School _____

10 Principal

5 Curriculum Technician

N= 38

General Supervisor
4 Counselor

Instructions:

Indicate in the column at the right with a check mark (✓) under the number which best indicate the level of increase for each item at the left. Use the following scale to indicate the level of increase:

0- not increase at all

1- little increase

2- regular increase

3- much increase

4- a great deal of increase

I. Increase Self Awareness

A. Have students increased their ability to describe their own current abilities and limitations?

$\bar{X}$ =	2%	19%	61%	13%
0	1	2	3	4
	2%	28%	58%	10%

B. Have students increased their ability to describe their own current interest and values?

		20%	68%	10%
--	--	-----	-----	-----

C. Do students display more positive attitudes toward themselves?

		19%	60%	21%
--	--	-----	-----	-----

D. Have students increased their recognition that social, economic, educational, and cultural forces influence their development?

		28%	60%	10%
--	--	-----	-----	-----

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0	1	2	3	4
	2%	28%	58%	10%

B. Have students increased their ability to describe their own current interest and values?

		20%	68%	10%

C. Do students display more positive attitudes toward themselves?

		19%	60%	21%

D. Have students increased their recognition that social, economic, educational, and cultural forces influence their development?

		28%	60%	10%

	$\bar{X} =$	3%	26%	62%	10%
	0	1	2	3	4
II. Increased Basic					
Academic/Vocational Skills					
A. Have students increased their level of generally useful numerical skills?			46%	36%	16%
B. Have students increased their level of generally useful communication skills?			13%	71%	16%
C. Have students increased their level of generally useful information processing skills?		2%	26%	65%	5%
D. Have students increased their level of generally useful decision-making skills?		5%	26%	68%	
E. Have students increased their level of generally useful interpersonal skills?			21%	73%	5%
III. Increased Awareness of Work Values					
A. Have students increased their recognition of the bases of various work values?		2%	13%	45%	22%
Increased Desire to Engage in Paid and/or Unpaid Work			2%	63%	34%
B. Do students possess more positive attitudes toward paid and unpaid work?		2%	10%	13%	16%
IV. Increased Awareness of and Knowledge About Work					
A. Have students increased their knowledge regarding the major duties and required abilities of different types of paid and unpaid work?		5%	25%	55%	15%
		2%	31%	50%	16%

	0	1	2	3	4
B. Have students increased their knowledge of differences in work conditions and life styles associated with different types of paid and unpaid work ?		2%	24%	63%	10%
C. Have students increased their knowledge of entry requirements for major types of paid and unpaid work ?		5%	31%	52%	10%
D. Have students increased their knowledge of impact of social and technological change in paid and unpaid work ?		2%	34%	46%	16%
E. Have students increased their knowledge of the important factors that affect work success and satisfaction ?			40%	68%	21%
V. Increased Career Decision-making Skills	X=	3%	30%	55%	7%
A. Have students increased their ability to associate their own abilities and limitations with possible success in present or future paid and unpaid work ?		2%	36%	52%	7%
B. Have students increased their ability to relate their personal interests and values to types of paid and unpaid work and their associated life-styles ?		5%	24%	60%	2%
C. Have students increased their ability to (a) identify (b) locate and (c) utilize sources of information to solve career decision-making problems ?		2%	42%	44%	10%
D. Have students increased their ability to determine the potential for future advancement/personal growth in work of their choosing ?		7%	34%	46%	10%

	0	1	2	3	4
E. Have students increased their knowledge of the steps to be taken and the factors to be considered in career planning?		2%	28%	63%	5%
F. Have students increased their active involvement in career decision-making?		2%	21%	65%	10%
VI. Improved Work Habits	$\bar{X} =$	3%	3%	54%	11%
A. Are students able to plan work effectively?		5%	42%	46%	
B. Are students more adaptable to varied work situations?		5%	39%	46%	7%
C. Do students have a more positive attitude toward the concepts of quality in relation to a work task?		2%	28%	52%	16%
D. Do students have a more positive attitude toward conservation of environmental and human resources in accomplishing work tasks?	2%	2%	28%	60%	5%
E. Do students have a more positive attitude toward responsibility for their own behavior and accomplishment of self-imposed work tasks?		2%	34%	55%	7%
F. Do students demonstrate an increased desire for continuous learning both in school and out?	2%	2%	10%	63%	21%
VII. Increased Work Seeking and Work Getting Skills	$\bar{X} =$	4%	5%	41%	5%
A. Have students increased their ability to a) identify, b) locate, and c) utilize sources that contain information about paid and unpaid work?	2%	5%	46%	36%	5%
B. Have students increased their level of skills required in a) applying for, and b) accepting work?	5%	5%	36%	44%	5%

ANALYSIS AND EVALUATION
OF THE
DEVELOPMENT OF OCCUPATIONAL CHARTS

I - OBJECTIVES AND ACCOMPLISHMENTS

OBJECTIVES OF THE ANALYSIS

The purpose and objective of this analysis is to evaluate the accomplishments in terms of the proposed objectives and the methodology utilized to develop the occupational charts related to the Proposal for an Exemplary Career Education Program in the Academic and the Vocational and Technical Education Program in Puerto Rico.

a) The General Objective
of the Proposal

The overall objective of the proposal is to continue the efforts being conducted for the development of a comprehensive Career Education Curriculum Model for the Commonwealth of Puerto Rico's educational system. The end product will be a clearinghouse operation of educational materials for K thru 12 both in the regular academic and the vocational-technical programs. It is expected that as a result of these efforts students will have the best opportunities to either continue studies or enter the world of work after exiting the public schools.

b) Specific Objective
of the Proposal

The specific objective related to this analysis, study and evaluation is stated on Paragraph E of the Specific Objective of the Proposal.

"Develop, test, and disseminate curriculum materials in 40 occupations within the occupational clusters for the Vocational and Technical Education of the Commonwealth".

c) Specific Objectives for 1974/75

Since the Proposal covers three fiscal years, from July 1, 1974 to June 30, 1977, Specific Objectives are stated in terms of the objectives for fiscal year 1974/75. As such, the proposed plans called for the development of Occupational Charts for the following twenty occupations:

Group I School Year 1974-75

1. Bakery
2. Photolithography
3. Maintenance Mechanics
4. Building Maintenance
5. Furniture Design and Construction
6. Upholstery
7. Tailor's
8. Photography
9. Interior Decoration
10. Design and Dressmaking
11. Refrigeration and Air Conditioning
12. Commercial Decoration
13. Electric Equipment Repairation
14. Construction Laboratory
15. Metal Laboratory

16. Embalming
17. Medical Emergency Technicians
18. Surgical Technicians
19. Supermarket Management
20. Store Management

ACCOMPLISHMENTS

a) Sustitution of Occupational Charts

As the proposal was progressing during the fiscal year some occupational charts were substituted by others. The following, are the charts substituted:

<u>Planned</u>	<u>Substituted by</u>
Building Maintenance	Automobile Mechanic
Electrical Equipment Reparation	Electrician Mechanic
Construction Laboratory	Construction Carpenter
Supermarket Management	General Salesmen
Store Manager	Realtor
Medical Emergency Technician	X-Ray Technician
Metal Laboratory	Bank Teller

b) Current Status of Charts Development

The following chart shows the status of the occupational charts development as of May 30, 1975:

<u>Occupational Charts</u>	<u>Status as of May 30/75</u>
1. Bakery	To be assigned
2. Photolithography	Being reproduced

<u>Occupational Charts</u>	<u>Status as of May 30/75</u>
3. Maintenance Mechanic	Being reproduced
4. Auto Mechanic	Duplicated
5. Furniture Design and Construction	Duplicated
6. Upholstery	Duplicated
7. Tailor	Being reproduced
8. Photography	Being reproduced
9. Linotype Operator	Being reproduced
10. Design and Dress Making	Duplicated
11. Refrigeration and Air Conditioning	Duplicated
12. Commercial Decoration	Being reproduced
13. Electrician Mechanic	Being reproduced
14. Construction Carpenter	Duplicated
15. Embalming	Being reproduced
16. X-Ray Technician	Being reproduced
17. Surgical Technician	Being reproduced
18. General Salesmen	In Production
19. Realtor	In Production
20. Bank Teller	Being reproduced

As of June 30, 1975, 16 of the occupational charts were validated in the industry and were ready for reproduction.

ANALYSIS AND COMMENTS

- 1- In the over all analysis, the Department of Education will accomplish the goals and objectives stated in their proposal. The level of technical and professional effort to accomplish said objectives (for some steps of the occupational chart development), was above the effort stated in the proposal. It is expected that for 1975-76, the new 20 occupational charts to be developed, will be accomplished comfortably because of the experiences gained during 1974-75.
- 2- The charts substituted, in most of the cases, were made in accordance with developments in the labor market. In only one instance, the substitution was made because of lack of appropriate curriculum technician to develop corresponding chart.
- 3- In all the cases, substitutions were made within the same Vocational and Technical Education Sub-Programs. That is, there were no noticeable differences in complexity among substituted charts.

II - ANALYSIS OF THE DEVELOPMENTAL PROCESS

PERSONNEL

a) Current Situation

The sources utilized to draw technical staff to develop the occupational charts were the following:

- 1- Curriculum technicians with experience in the appropriate occupational area.
- 2- Instructors with experience appropriate to the occupational area who were oriented and trained for the development of occupational charts.
- 3- Curriculum technicians with experience in occupational chart development but only working knowledge on the concerned occupation.
- 4- Industry technicians who were oriented and trained for the development of occupational charts.

b) Analysis and Recommendations

There is no significant difference in the quantitative or qualitative out-put in occupational chart development in accordance to the source of technical staff for the occupational chart development. It appears that the presence of one attribute such as knowledge of the occupation or knowledge on curriculum development are sufficient if there is the interest, motivation and desire to investigate the occupation or the chart development techniques, as the case may be,

in order to be effective in occupational charting.

Nevertheless, some experience technicians, with appropriate charting training, have produced some of the most complete charts.

Therefore, motivation and detail knowledge of the occupation should be an important factor to be considered in the selection process of technical staff for occupational charting, if and when, appropriate training is provided.

OCCUPATIONAL CHARTS DEVELOPMENT PROCEDURES

a) Current Procedures

The following are the procedural steps followed for the preparation of the occupational charts:

1. Description of the occupation in accordance with the D.O.T. and other bibliographical and industry sources when the occupation is not properly classified.
2. Development of an occupational outline including what is to be done and the knowledge needed to perform properly the occupation.
3. Development of the task analysis
 - Identification of all the manipulative tasks
 - Development of the activities (operations) needed to complete a task.
 - Identify common tasks to form an "unit"
 - Identify common units to form a "Block".

- The chart is designed to show, and clearly identify all new and repetitive activities to be performed for different tasks.

4. Review of task analysis and re-statements of groupings in terms of activities, tasks, units and blocks.
5. Validation of the occupational charts by consulting corresponding industry.
6. Review of industry comments and recommendations. Rewrite activities, tasks, units and blocks when appropriate.
7. Design of final chart, duplicate and distribute.

b) Analysis and Recommendations

1. Development of Occupational Outline

At the stage of the development of the occupational outline it should be considered to have some preliminary involvement and participation of the instructors and the industry that can help to clear important areas for blocking units and unifying tasks. It will eventually help at the implementation level with the teachers who will develop a higher interest in the program.

It will also generate the needed interest of industry during the validation period if they are drawn into the picture early in the curriculum development stage.

VALIDATION BY INDUSTRY

a. Current Situation

One of the most important steps in the development process of occupational charts is the validation by industry. In order to implement this important part of the program the Department of Education has instituted a procedure by which industry is invited to validate the occupational charts based on actual on the job experience. The basis of selection were the following:

- Place of industry location
- Size of the industry and that the occupation be represented within their normal operation
- Prestige of the firm and length of establishment
- Desire to cooperate in the validation process.

b. Analysis and Recommendations

All the occupational charts have been discussed and validated by industry specialists. It should be kept in mind this is highly influenced by the "way a man does a job" and the degree of motivation the validator has in the occupational charts. Additionally, the validators' supervisor, company policies, variations among company operations are a few of the biases that may be introduced in the validation process. In order to control part of this validation bias, the following step is recommended to strengthen the validation.

1. For a second and third validation cycle, a whole new group of three validators should be utilized. The first group of validators could be utilized again for the fourth validation cycle.

COMMENTS ON IMPLEMENTATION

Though the occupational charts will be in operation in August with their corresponding additional tools needed to implement and individualized instruction program, a few of the charts have been distributed as they were finished to introduce them into the classroom to acquaint students and teachers to the new methodology.

The most common reactions of this limited number of teachers and coordinators are the following:

1. Helps for the organization, planning and scheduling of the course and permit the students to see the distribution of tasks to be accomplished.
2. Useful to evaluate the individual progress of each student in terms of tasks and activities. It also helps to see where each one is standing in relation to the course.
3. Helps the student in developing self-awareness in connection with his learning of a trade.

SUMMARY OF RECOMMENDATIONS

1. To introduce teachers and industry participation early in the development of the occupational outline to
 - facilitate implementation at the classroom level
 - permit a breakdown in terms of units, tasks and activities in accordance to a balanced influence of curriculum technician, expert of the industry and teachers needs.
 - facilitate the ultimate validation process by industry
2. To maintain appropriate records on the complete occupational chart development process from the initial job definition, outline and final occupational charts, including comments and recommendations by teachers, industry experts and the rationale followed to draw the final occupational chart.
3. To maintain, at this first stage of occupational charts development, grouping and sequencing in terms of blocks, units, tasks and activities at an operational minimum, and permit the teachers some degree of structural freedom up until additional experience (as a teaching tool) is incorporated in the occupational charts. In subsequent review cycles, expanded tasks and activities could be gradually added for the full development of the occupational charts.

4. To have an alternate organization and sequencing of blocks, units, tasks and activities, the following recommendations are suggested:

- a- Units, following a sequencing pattern dictated by work flow, may in some cases, be more convenient to group them in terms of the frequency of the skills most often used.
- b- Tasks, following a sequencing pattern dictated by degree of complexity, may in some cases, be more convenient to group them in terms of work flow.
- c- Activities, following a sequencing pattern dictated by frequency of the skills most often used, may in some cases, be more convenient to group them in terms of complexity.

Proposal for the Evaluation of an Exemplary Career Education
Comprehensive Program in the Academic and the Vocational
and Technical Education Program in Puerto Rico

I. Introduction

The broad limits of what will be included in the career education treatment or activities provided students were established in the overview of the program. This overview of the program defines in general terms what facet of the school system is to be evaluated. It was determined that the evaluation should encompass all career education activities in the testing of the career education oriented curricula for the first and second grade levels, and from 9th to 12th grade levels, in the six regional sites selected in each of the six educational regions. The Project Implementation Specialist at the Central level will examine together with the Vocational Guidance Director the role of the guidance counselor to adapt its role to Puerto Rico's needs in Career Education. The Curriculum technician in the Career Education Component at the central level, will work revising the curricula and integrating the career education concept on it, for the Third, Fourth, Fifth, and Sixth Grade levels. At the same time, the Vocational and Technical Education Program will make arrangements to contract for the development of teachers and students curriculum materials with expert consultation in each occupation. A Curriculum Coordinator at the Vocational and Technical Education Program will coordinate the curriculum development of a group of twenty occupations to be revised.

II. Outcome Question/Treatment Group Matrix

This second step consists of a series of tasks leading to the identification of the expected relationship between the student outcome objectives of career education, the activities or treatments which will lead to these outcomes and the students who receive these treatments.

Table I - A
Activity Treatment Table

<u>Activity Area</u>	<u>Specific Treatments</u>
Elementary School Familiarization	1. Curriculum infusion Material in Mathematics, Spanish and Social Studies
A. Knowledge of Self	2. Career education field trips
B. World of Work	3. Visitors in the classroom to talk about their jobs
C. Occupational decision making	4. Use of special career materials provided by Career Education Com- ponent at the Central Office.

Junior and High School
Secondary Level)

Career Exploration
Career Orientation

- A. Knowledge of Self
- B. World of Work
- C. Occupational decision
making

- 5. Group sessions where the students describe, orally, graphically and through simulations, different occupations, their personal career preferences, the characteristics desirable for entry into different careers, and which of these characteristics they personally possessed.
- 1. Curriculum infusion
Integration of career education philosophy into the existing curricula
- 2. Career education field trips
- 4. Use of special career materials provided by the Career Education Component at the Central Office
- 5. Group sessions with the counselor.

PHASE II EVALUATION DESIGN

Treatment Group: Grades I - II (Social Studies, Spanish and Mathematics)
7-9 (Social Studies and Mathematics)

<u>Column 1</u>	<u>Column 2</u>	<u>Column 3</u>	<u>Column 4</u>	<u>Column 5</u>	<u>Column 6</u>	<u>Column 7</u>
Student Outcome Area	Related Evaluation Questions	Design	Data Sources	Instrumentation	Sampling	Data Analysis
I. Increased self-awareness etc. See Table I-C	Outcome: See Table I-D	Same Group Before-After Design (Pre-Post Test) I and II 709 grades at project schools	I and II 7-9 Grades students at Projects Schools Teachers Supervisors	Cognitive Test Career Education Questionnaires Attitude Scales Interview Schedules Interest Inventory	Sample size will be as follows I-100 II-100 VII-100 A proportional stratified design will be used	T-Test of significance of difference between pre and post test score means of student samples Frequency distribution Descriptive statistics Biserial correlation

Junior High
Career Exploration and Orientation

Participants:

Grades 7 to 9 at

Treatment

Career Exploration
Career Orientation

1. Curriculum infusion
2. Career education field trips
3. Visitors in the classroom to talk about their jobs
4. Use of special career education material provided by the Career Education Component
5. Group sessions with the counselor

Outcome Area

Treatment same at the different Junior High School related to the six outcome area below

- I- Self Awareness
- II- Basic Academic /Vocational Values
- III- Awareness of Work Values
- IV- Competency in Career Division - Making Skills
- VI - Good Work Habits

Table I - B
Activity - Treatments - Participants Table

Activity Area	Treatments	Participants	Treatment Groups
Elementary Familiarization A. Knowledge of self B. World of work C. Occupational Decision making	1. Curriculum infusion 2. Career education field trips 3. Visitors in the classroom to talk about their jobs 4. Use of special career material provided by Career Education component 5. Group sessions where the students describe different occupations	Grades I, II at Rosa Molinari - Hatillo Charles H. Terry - Mayaguez Segunda Unidad Valenciano - Juncos Dr. Gustavo Muñoz Díaz - Aguas Buenas S. U. Dajaos - Bayamón Sur José Rodríguez Soto - Guánica	Grades I and II Social Studies, Mathematics and Spanish
Junior High School (Secondary Level) Career Exploration Career Orientation A. Knowledge of self B. World of work C. Occupational Decision making	1. Curriculum infusion - Integration of Career Education into the existing Curricula 2. Career education field trips 3. Visitors in the classroom to talk about their jobs 4. Use of special career education materials provided by the Career Education Component 5. Group Sessions with the Counselor	Grades 7 to 9 at Juilete A. Cassey (Hatillo) Manuel A. Barreto (Mayaguez) Fulgencio Piñero (Juncos) Rafael Nicolau (Aguas Buenas) José A. Dávila (Bayamón Sur) Agripina Seda (Guánica)	Grades 7 through 9 Inversiones y Prestamo (Mathematics) Orientación Educativa personal y ocupacional (Social Studies)

Table I-C
Treatment Group - Outcome Area Table
Elementary Familiarization

Participants:

Grades I and II at the following elementary Schools:
Rosa Molinari - Hatillo
Charles H. Terry - Mayaguez
Segunda Unidad Valenciano - Juncos
Dr. Gustavo Muñoz Díaz - Aguas Buenas
S. Unidad Dajaos - Bayamón Sur
José Rodríguez Soto - Guánica

Treatment

Elementary Familiarization

1. Curriculum infusion
2. Career education field trips
3. Visitors in the Classroom to talk about their jobs
4. Use of special career material provided by Career Education Component
5. Group sessions where the students describe different occupations

Outcome Area

Treatment applies in each school in relation to the six outcome area below

- I. Self Awareness
- II- Basic Academic/Vocational Skills
- III- Awareness of Work Values
- IV- Awareness of and Knowledge about work
- V- Competency in Career Decision - Making Skills
- VI- Good Work Habits

TABLE I-D

OUTCOME QUESTION/TREATMENT GROUP MATRIX

Outcome Questions	Treatment Group									
	I-II Molina	I-II Rosa	I-II Charles H. Terry	I-II Muñoz Díaz	I-II S.U. Dajao	I-II Rodríguez Soto	7-9 Juliete A. Cassey	7-9 Manuel H. Barreto	7-9 Fulgencio Pinedo	7-9 José A. Dávila
I. Increased Self Awareness										
A. Have students increased their ability to describe their own current abilities and limitations?										
B. Have students increased their ability to describe their own current interest and values?										
C. Do students display more positive attitudes toward themselves?										
D. Have students increased their recognition that social, economic, educational, and cultural forces influence their development?										

TABLE 1-3

OUTCOME QUESTIONS TREATMENT GROUP MATRIX

Outcome Questions	Treatment Group									
	I-II I-II	I-II I-II	I-II I-II	I-II I-II	I-II I-II	I-II I-II	I-II I-II	I-II I-II	I-II I-II	I-II I-II
	Rosa Molinari	S. U. Valencia	Charles H. Terry	Munoz Diaz	S. U. Delaosa	Rodriguez Soto	Juliete A. Cassey	Manuel H. Pareto	Juliete A. Mavila	Rafael Nicolao
II. Increased Basic Academic/Vocational Skills										
A. Have students increased their level of generally useful numerical skills ?										
B. Have students increased their level of generally useful communication skills ?										
C. Have students increased their level of generally useful information processing skills ?										
D. Have students increased their level of generally useful decision-making skills ?										
E. Have students increased their level of generally useful interpersonal skills ?										

OUTPATIENT ASSIGNMENT/TREATMENT GROUP MATRIX

Treatment
Group

Outcome Questions

1-11 I
1-11 I
Molinar
1-11 I

~~1050~~

Charles

S. U. Valenciana

Muñoz I) idz

S. U. Dajao's

Adriaguez Soto

here N. CASSIDY

nel H. Barreto

encio Pignero

Pávila

Seda
Nicola

Seda

III. Increased Awareness of Work Values

A. Have students increased their recognition of the bases of various work values?

Increased Desire to Engage in Paid and/or Unpaid Work

B. Do students possess more positive attitudes toward paid and unpaid work?

TABLE I-D

OUTCOME QUESTION/TREATMENT GROUP MATRIX

Outcome Questions	Treatment Group									
	I-II Rosa Mollari	I-II Charles H. Terry	I-II S. U. Valenciana	I-II Muñoz Díaz	I-II S. U. Delaosa	I-II Rodríguez Soto	I-II Juliete A. Cassey	I-II Manuel H. Barreto	I-II Juliencio Piñeiro	I-II José A. Dávila
IV. Increased Awareness of and Knowledge About Work										
A. Have students increased their knowledge regarding the major duties and required abilities of different types of paid and unpaid work?										
B. Have students increased their knowledge of differences in work conditions and life styles associated with different types of paid and unpaid work?										
C. Have students increased their knowledge of entry requirements for major types of paid and unpaid work?										
D. Have students increased their knowledge of impact of social and technological change in paid and unpaid work?										
E. Have students increased their knowledge of the important factors that affect work success and satisfaction?										

TABLE I-D

OUTCOME QUESTION/TREATMENT GROUP MATRIX

Outcome Questions	Treatment Group									
	I-II	I-II	I-II	I-II	I-II	I-II	I-II	I-II	I-II	I-II
V. Increased Career Decision-making skills.										
A. Have students increased their ability to associate their own abilities and limitations with possible success in present or future paid and unpaid work?										
B. Have students increased their ability to relate their personal interests and values to types of paid and unpaid work and their associated life-styles?										
C. Have students increased their ability to (a) identify b) locate and c) utilize sources of information to solve career decision-making problems?										
D. Have students increased their ability to determine the potential for future advancement/personal growth in work of their choosing?										
E. Have students increased their knowledge of the steps to be taken and the factors to be considered in career planning?										
F. Have students increased their active involvement in career decision-making?										

TABLE I-D

OUTCOME QUESTION/TREATMENT GROUP MATRIX

Outcome Questions	Treatment Group									
	I-II Rosa Molinari	I-II Charles H. Terry	I-II S. U. Valenciama	I-II Munoz Diaz	I-II S. U. Dajao	I-II Rodriguez Soto	I-II Juliete A. Cassey	I-II Manuel H. Barreto	I-II Juliencio Plneiro	I-II Jose A. Davila
VI. Improved Work Habits										
A. Are students able to plan work effectively?										
B. Are students more adaptable to varied work situations?										
C. Do students have a more positive attitude toward the concepts of quality in relation to a work task?										
D. Do students have a more positive attitude toward conservation of environmental and human resources in accomplishing work tasks?										
E. Do students have a more positive attitude toward responsibility for their own behavior and accomplishment of self-imposed work tasks?										
F. Do students demonstrate an increased desire for continuous learning both in school and out?										
VII. Increased Work Seeking and Work Getting Skills										
A. Have students increased their ability to a) identify, b) locate, and c) utilize sources that contain information about paid and unpaid work?										
B. Have students increased their level of skills required in a) applying for, and b) accepting work?										

INTERVIEW SCHEDULE
EVALUATION OF AN EXEMPLARY
CAREER EDUCATION PROGRAM

Category of Person Interviewed

_____ Teacher

School _____

_____ Principal

_____ Curriculum Technician

_____ General Supervisor

Instructions:

Indicate in the column at the right with a check mark (✓) under the number which best indicate the level of increase for each item at the left. Use the following scale to indicate the level of increase:

0- not increase at all

1- little increase

2- regular increase

3- much increase

4- a great deal of increase

I. Increase Self Awareness

	0	1	2	3	4
A. Have students increased their ability to describe their own current abilities and limitations?					
B. Have students increased their ability to describe their own current interest and values?					
C. Do students display more positive attitudes toward themselves?					
D. Have students increased their recognition that social, economic, educational, and cultural forces influence their development?					

II. Increased Basic

Academic/Vocational Skills

- A. Have students increased their level of generally useful numerical skills ?
- B. Have students increased their level of generally useful communication skills ?
- C. Have students increased their level of generally useful information processing skills ?
- D. Have students increased their level of generally useful decision-making skills ?
- E. Have students increased their level of generally useful interpersonal skills ?

III. Increased Awareness of Work Values

- A. Have students increased their recognition of the bases of various work values?

Increased Desire to Engage in Paid and/or Unpaid Work

- B. Do students possess more positive attitudes toward paid and unpaid work?

IV. Increased Awareness of and Knowledge About Work

- A. Have students increased their knowledge regarding the major duties and required abilities of different types of paid and unpaid work?

	0	1	2	3	4
B. Have students increased their knowledge of differences in work conditions and life styles associated with different types of paid and unpaid work ?					
C. Have students increased their knowledge of entry requirements for major types of paid and unpaid work ?					
D. Have students increased their knowledge of impact of social and technological change in paid and unpaid work ?					
E. Have students increased their knowledge of the important factors that affect work success and satisfaction ?					
V. Increased Career Decision-making Skills					
A. Have students increased their ability to associate their own abilities and limitations with possible success in present or future paid and unpaid work ?					
B. Have students increased their ability to relate their personal interests and values to types of paid and unpaid work and their associated life-styles ?					
C. Have students increased their ability to (a) identify (b) locate and (c) utilize sources of information to solve career decision-making problems ?					
D. Have students increased their ability to determine the potential for future advancement/personal growth in work of their choosing ?					

	0	1	2	3	4
E. Have students increased their knowledge of the steps to be taken and the factors to be considered in career planning?					
F. Have students increased their active involvement in career decision-making?					
VI. Improved Work Habits					
A. Are students able to plan work effectively?					
B. Are students more adaptable to varied work situations?					
C. Do students have a more positive attitude toward the concepts of quality in relation to a work task?					
D. Do students have a more positive attitude toward conservation of environmental and human resources in accomplishing work tasks?					
E. Do students have a more positive attitude toward responsibility for their own behavior and accomplishment of self-imposed work tasks?					
F. Do students demonstrate an increased desire for continuous learning both in school and out?					
VII. Increased Work Seeking and Work Getting Skills					
A. Have students increased their ability to a) identify, b) locate, and c) utilize sources that contain information about paid and unpaid work?					
B. Have students increased their level of skills required in a) applying for, and b) accepting work?					

Estado Libre Asociado de Puerto Rico
Departamento de Instrucción Pública
Hato Rey , Puerto Rico

Nombre: _____ Fecha: _____
Escuela: _____ Pueblo: _____

PRUEBA DE CONOCIMIENTO DEL MUNDO OCUPACIONAL

Serie "Career Education"
(Aprendiendo a ser)

Nivel Primario (Grados 1-3)

Forma A

Preparada por :
Corporación de Servicios Psicológicos
Río Piedras , Puerto Rico
1974

Parte I - Marca con una cruz (+) el dibujo que representa la ocupación que se menciona en el primer cuadro a la izquierda.

1. policía



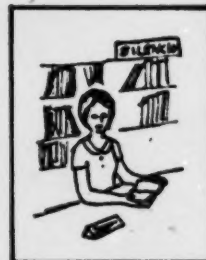
2. barbero



3. carpintero



4. costurera

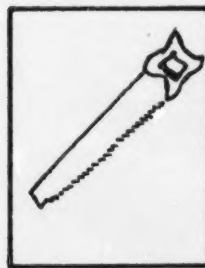


5. enfermera



Parte II - Marca con una cruz el dibujo que representa el objeto más relacionado con el trabajador que se presenta en el primer cuadro a la izquierda.

1.



2.



3.



4.



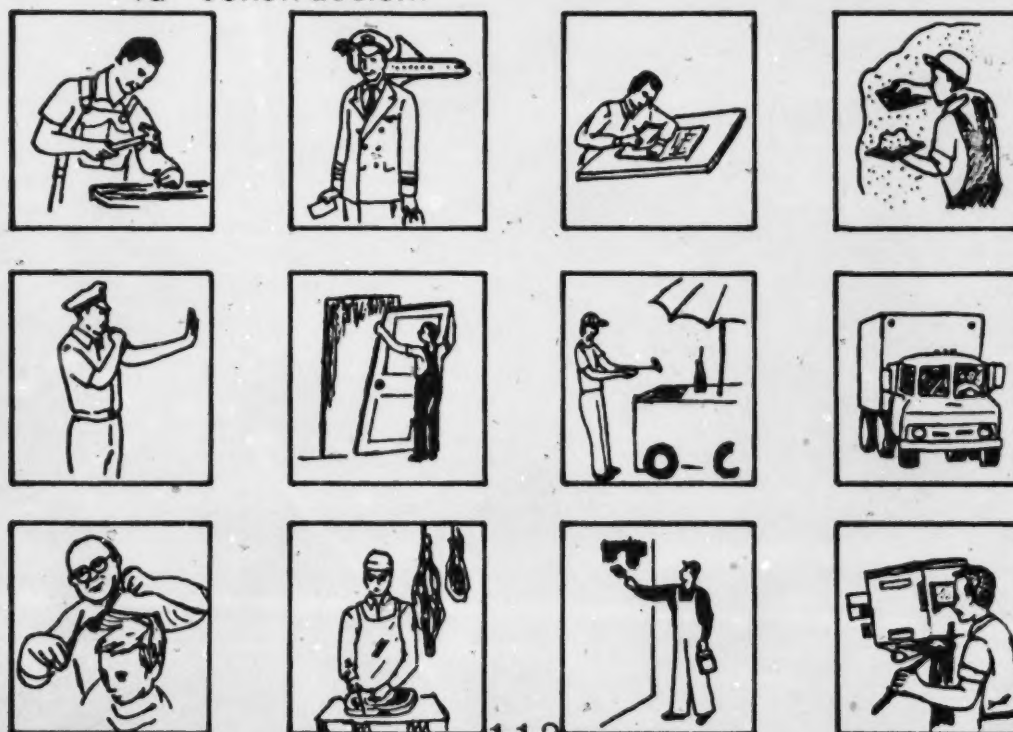
5.



Parte III - Marca con una cruz los cuadros que representan ocupaciones que se derivan de la industria lechera.



Parte IV - Marca con una cruz los cuadros que representan ocupaciones que se derivan de la industria de la construcción.



Parte V - Marca con una cruz los cuadros que representan ocupaciones relacionadas con la agricultura.



Parte VI - Marca con una cruz los cuadros que representan ocupaciones o trabajos típicos del campo.



Parte VII - Marca con una cruz los cuadros que representan ocupaciones o trabajos típicos del pueblo.



Parte VIII - Marca con una cruz los cuadros que representan las ocupaciones relacionadas con la salud.



Parte IX- Marca con una cruz los cuadros que representan ocupaciones de servidores públicos.



Parte X- Marca con una cruz los cuadros que representan ocupaciones que requieren estudios universitarios.



Parte XI - Marca con una cruz los cuadros que representan ocupaciones que requieren mucho conocimiento de pesas y números.



EVALUACION DEL PROYECTO

"CAREER EDUCATION" (Aprendiendo a Ser)

PRUEBA DE CONOCIMIENTO RELACIONADA CON EL MUNDO OCUPACIONAL

Instrucciones

No escribas en este folleto. Tendrás una hoja separada para las contestaciones.

Esta prueba contiene 60 ejercicios de alternativas múltiples. Lee con cuidado cada pregunta. Luego escoje la alternativa correcta o que mejor contesta la pregunta y anótala en el número correspondiente en la hoja de contestaciones.

Trata de contestar todas las preguntas. Si encuentras que una es muy difícil, pasa a la que sigue, pero asegúrate de que estás escribiendo tu contestación en el número correcto en la hoja de contestaciones.

Preparada por:

Corporación de Servicios Psicológicos, Inc.
Río Piedras, Puerto Rico
Teléfono: 767-3971

(Edición de prueba. Se prohíbe la reproducción).

PRUEBA DE CONOCIMIENTO

Selecciona la alternativa que contesta correctamente la pregunta. Luego anota la letra que le identifica en la hoja de contestaciones.

1. ¿Cuál es el trabajador que más usa la brocha en su trabajo?
 - A. plomero
 - B. pintor
 - C. ordeñador
 - D. cartero
2. ¿Cuál es la empleada que usa la maquinilla de escribir?
 - A. costurera
 - B. estilista
 - C. secretaria
 - D. maestra
3. ¿Cómo se llama el empleado que cultiva plantas?
 - A. agrimensor
 - B. agricultor
 - C. avicultor
 - D. horticultor
4. ¿Cómo se llama el trabajador que hace muebles?
 - A. ebanista
 - B. delineante
 - C. carpintero
 - D. electricista
5. ¿Qué nombre se le dá a la persona que mide fincas o lotes?
 - A. agrónomo
 - B. agricultor
 - C. agrimensor
 - D. astrónomo
6. ¿Cuál de los siguientes trabajadores necesita estudios universitarios?
 - A. automecánico
 - B. albañil
 - C. maestro
 - D. cartero
7. ¿Cuál de los siguientes necesita mayor conocimiento de la aritmética?
 - A. ingeniero
 - B. profesor
 - C. biólogo
 - D. médico

8- ¿Cuál de los siguientes profesionales se dedica a curar animales heridos o enfermos?

- | | |
|------------|----------------|
| A. químico | C. enfermera |
| B. abogado | D. veterinario |

9. ¿Cuál de los siguientes usa la radio como fuente de trabajo?

- | | |
|--------------|---------------|
| A. locutor | C. periodista |
| B. detective | D. músico |

10. ¿Qué trabajador se dedica a las instalaciones de alumbrado?

- | | |
|-----------------|--------------|
| A. panadero | C. estilista |
| B. electricista | D. barbero |

11. ¿Cómo se llama el trabajador que se dedica a brillar zapatos?

- | | |
|-------------|----------------|
| A. zapatero | C. revendón |
| B. cartero | D. limpiabotas |

12. ¿Cuál de los siguientes despacha medicinas de acuerdo con la receta?

- | | |
|-----------------|------------------|
| A. médico | C. enfermera |
| B. farmacéutico | D. recepcionista |

13. ¿Cómo se llama la persona que organiza y dirige las operaciones de una fábrica?

- | | |
|------------|--------------|
| A. gerente | C. contable |
| B. maestro | D. ingeniero |

14. ¿Cuál de las siguientes escribe cartas e informes a máquina?

- | | |
|--------------|---------------|
| A. estilista | C. secretaria |
| B. modista | D. enfermera |

15. ¿Cuál de los siguientes necesita el mayor desarrollo de destreza manual?

- | | |
|-------------|---------------|
| A. mecánico | C. enfermera |
| B. bombero | D. delineante |

16. ¿Cómo se llama la persona que se dedica a la crianza de pollos?
- A. horticultor C. agricultor
B. pescador D. avicultor
17. ¿Cuál es la persona que se dedica a criar animales de carne y de leche?
- A. caminero C. ganadero
B. jardinero D. reportero
18. ¿Cómo se llama la persona que se dedica a escribir sobre acontecimientos y redactar noticias?
- A. administrador C. maestro
B. deportista D. periodista
19. ¿Qué nombre se le da a la encargada de planear la comida en hospitales, hoteles o escuelas?
- A. investigadora C. enfermera
B. terapeuta D. dietista
20. ¿Cómo se llama la persona que se dedica a ponerle la cubierta a los libros?
- A. encuadernador C. lector
B. bibliotecario D. suplidor
21. ¿Cómo se le llama a la persona que lleva las cuentas en un supermercado o una fábrica?
- A. gerente C. supervisor
B. ingeniero D. contable
22. ¿A cuál de los siguientes se le encarga hacer cumplir las ordenanzas municipales y las leyes del país?
- A. juez C. policía
B. abogado D. inspector

23. ¿Cuál de las siguientes es la persona que se dedica a diseñar o dibujar estilos de ropa?
- | | |
|---------------|------------------|
| A. modista | C. artista |
| B. periodista | D. recepcionista |
24. ¿Cómo se llama la persona que maneja un avión para una línea comercial aérea o la fuerza aérea de un país?
- | | |
|------------------|-----------------------|
| A. administrador | C. director de vuelos |
| B. supervisor | D. piloto |
25. ¿Cuál es la persona que se dedica a preparar las comidas en hospitales y hoteles?
- | | |
|--------------|-------------|
| A. portero | C. cocinero |
| B. cantinero | D. panadero |

PARTE II

En cada uno de los siguientes grupos de ocupaciones, selecciona la ocupación que corresponde o se deriva de la familia o conglomerado ocupacional que se da. Luego anota la letra que identifica tu contestación en la hoja de contestaciones.

A. Familia ocupacional de Salud

- | | |
|------------------|-----------------|
| 26. A. dentista | C. biólogo |
| B. meteorólogo | D. bacteriólogo |
| 27. A. ingeniero | C. horticultor |
| B. optómetra | D. avicultor |

B. Familia ocupacional del Servicio Público

- | | |
|----------------------|----------------|
| 28. A. botánico | C. meteorólogo |
| B. trabajador Social | D. pescador |
| 29. A. arquitecto | C. soldado |
| B. biólogo | D. consejero |

C. Familia ocupacional de la Agricultura y Recursos Naturales.

- | | |
|--------------------|--------------|
| 30. A. plomero | C. canataz |
| B. mecánico | D. cajero |
| 31. A. floricultor | C. mayorista |
| B. gerente | D. vendedor |

CH. Familia ocupacional de las Ciencias Marinas

- | | |
|-----------------|---------------|
| 32. A. buzo | C. instructor |
| B. economista | D. diseñador |
| 33. A. geógrafo | D. hidrógrafo |
| B. meteorólogo | D. asperjador |

D. Familia ocupacional de Control Ambiental

- | | |
|------------------|-----------------|
| 34. A. ajustador | C. historiador |
| B. contador | D. exterminador |
| 35. A. azafata | D. paisajista |
| B. fotógrafo | D. jinete |

E. Familia ocupacional de los Servicios Personales

- | | |
|-------------------|------------------|
| 36. A. camarera | C. planificador |
| B. bibliotecario | D. recepcionista |
| 37. A. columnista | C. recepcionista |
| B. pediatra | D. dietista |

F. Familia ocupacional de la Comunicación y Media

- | | |
|-------------------|------------------|
| 38. A. periodista | C. psiquiatra |
| B. enfermera | D. quiropráctico |

- | | |
|------------------|--------------|
| 39. A. psicólogo | C. audiólogo |
| B. editor | D. terapeuta |

G. Familia ocupacional de la Hospitalidad y Recreación

- | | |
|--------------------|--------------|
| 40. A. estadística | C. salvavida |
| B. corredor | D. cajero |
| 41. A. diseñador | C. sociólogo |
| B. comediante | D. abogado |

H. Familia ocupacional de las Bellas Artes y Humanidades

- | | |
|------------------|---------------|
| 42. A. consejero | C. columnista |
| B. curador | D. escritor |
| 43. A. payado | C. clérigo |
| B. fotógrafo | D. azafata |

I. Familia ocupacional del Comercio y Oficina

- | | |
|--------------------|---------------|
| 44. A. horticultor | C. calibrador |
| B. pescador | D. contador |
| 45. A. agricultor | C. auditor |
| B. avicultor | D. diseñador |

J. Familia ocupacional de la Distribución

- | | |
|------------------|---------------|
| 46. A. jardinero | C. cajero |
| B. astrónomo | D. tecnólogo |
| 47. A. optómetra | C. economista |
| B. psicómetra | D. terapeuta |

K. Familia ocupacional de la Manufactura

- | | |
|---------------|----------------|
| 48. A. cajera | C. instructora |
| B. costurera | D. maestra |

49. A. bordadora C. camarera
 B. consejera D. acróbata

L. Familia ocupacional de la Construcción

50. A. carpintero C. exterminador
 B. mecánico D. pescador
51. A. secretaria C. salvavida
 B. electricista D. paisajista

PARTE III

En esta parte se presenta una combinación de aptitudes, intereses y habilidad para que indiques qué profesional o trabajador las necesita para tener éxito en su ocupación. Anota la letra que identifica tu contestación en el número correspondiente en la hoja de contestaciones.

52. Aptitud numérica, habilidad en las cuatro operaciones fundamentales de la matemática, intereses en los números.

- A. decorador C. abogado
B. contador D. médico

53. Aptitud musical, sensibilidad y capacidad para sonidos en diversas tonalidades, interés musical y persuasivo.

- A. dentista C. maestro
B. orientador D. cantante

54. Destreza manual, habilidad en el uso de herramientas, interés mecánico.

- A. ingeniero C. químico
B. joyero D. músico

55. Aptitud artística, habilidad para captar y apreciar formas, interés en el arte.

- A. editor C. aviador
B. investigador D. decorador

56. Aptitud científica, habilidad para inferir, definir y comprender principios, interés científico.
- A. abogado C. compositor
B. físico D. militar
57. Aptitud social, habilidad para tratar con personas, para cooperar y persuadir, interés persuasivo y en servicio social.
- A. cirujano C. carpintero
B. piloto D. diplomático
58. Aptitud verbal, habilidad para entender, utilizar y definir palabras, interés literario.
- A. escultor C. ingeniero
B. periodista D. capitán
59. Aptitud práctica y constructiva, habilidad para percibir, imaginar y realizar formas de dos y tres dimensiones en movimiento, interés práctico.
- A. cajero C. policía
B. cartero D. mecánico
60. Aptitud en precisión y percepción, habilidad para el manejo de nombres, números, y documentos, interés clerical.
- A. secretaria C. maestra
B. enfermera D. escritora

EVALUACION DEL PROYECTO

"CAREER EDUCATION" (Aprendiendo a Ser)

INVENTARIO DE ACTITUDES HACIA EL MUNDO OCUPACIONAL

Instrucciones:

No escribas en este folleto. Tendrás una hoja separada para las contestaciones.

Este es un inventario que consta de 75 declaraciones diseñadas para obtener un muestrario de tus opiniones sobre las ocupaciones. Como hay distintas opiniones en cuanto al valor de las ocupaciones, no hay pues tal cosa como contestaciones correctas o incorrectas. Lo que se desea es tu opinión y tu sentir acerca de estas declaraciones.

Lee cuidadosamente cada declaración y decide cómo tú sientes y opinas; luego escribe tu contestación en el número correspondiente en la hoja de contestaciones.

La forma de contestar es la siguiente:

1. Si estás de acuerdo con la declaración, escribes un Sí
2. Si no estás de acuerdo con la declaración, escribes un No
3. Si estás indeciso o inseguro en cuanto a la declaración, escribes un I.

Piensa en términos de situaciones generales y no en términos de grupos específicos. Trabaja tan rápidamente como puedas. Contesta todos los ejercicios.

Preparado por:

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ACTITUDES

Sí = estoy de acuerdo

I = indeciso

No = no estoy de acuerdo

1. Me gustaría trabajar duro en todo lo que haga.
2. Me gustaría ser una persona hábil o diestra en la ocupación que desempeñe.
3. Prefiero los trabajos fáciles aunque gane poco.
4. El trabajo lo hizo Dios como castigo.
5. Prefiriría ganar mucho dinero aunque no me guste el trabajo que haga.
6. Me siento mal cuando tengo que trabajar.
7. Prefiriría que el gobierno me mantenga a tener que trabajar.
8. Mis amigos me consideran como un vago.
9. Admiro a los trabajadores que den el máximo en su trabajo.
10. Los trabajadores no deben trabajar más del tiempo obligatorio.
11. Los mejores ciudadanos son aquéllos que con su trabajo mueven la economía del país.
12. Prefiriría no trabajar, si no llego a ser un profesional.
13. Desearía ser una persona responsable en la ocupación que tenga en el futuro.
14. Admiro más a un trabajador astuto aunque no sea sincero que a uno sincero aunque sea término medio.
15. Creo que uno debe simular que le gusta el empleo hasta que lo hacen permanente en el mismo.
16. En tiempos de amenaza, el país necesita más de la dedicación y esfuerzo de sus trabajadores.
17. Creo que la gente estaría más contenta si el gobierno los mantiene que si trabajaran para ellos mismos mantenerse.

Sí = estoy de acuerdo

I = Indeciso

No = no estoy de acuerdo

18. Cuando me encuentro con gente descuidada y desordenada en su trabajo me siento molesto y disgustado.
19. Encuentro que el trabajo es una de las formas para que la gente llegue a ser feliz.
20. Cuando me toque trabajar, aprovecharé que el jefe no esté presente para yo descansar.
21. Preferiría ser un abogado aunque malo a ser un buen albañil.
22. Tiendo a sentirme deprimido cuando pienso en que algún día tendré que trabajar.
23. Me parece que es mejor que al trabajador de que se le pague por hora y no por su dedicación y calidad del trabajo.
24. Yo podría tolerar vivir toda mi vida sin trabajar, aunque no tenga lo suficiente para las necesidades básicas de la vida.
25. En el trabajo, creo que uno debe esperar a que los otros empleen primero.
26. De ser posible, preferiría casarme con una mujer que me mantenga a tener que ser yo quien trabaje para mantenerla.
27. Cuando tengo que hacer algún trabajo en la casa siento que se me acaban las energías.
28. Creo que en mi casa tienen prejuicio contra mí cuando me piden que haga algún trabajo.
29. Los padres deben poner a sus hijos a trabajar como castigo a las cosas malas que hacen.
30. Me gustaría ser atendido por sirvientes personales y no tener que trabajar.
31. Creo que puedo llegar a ser tan competente en un trabajo como la mayoría de las personas.
32. Pienso que es penoso tenerse uno que levantar para ir a trabajar.

Sí = estoy de acuerdo

I = indeciso

No = no estoy de acuerdo

33. Creo que los trabajadores deben dejar de trabajar si se les llama mucho la atención.
34. Me complace cuando otras personas alaban mi trabajo.
35. Me siento orgulloso cuando puedo hacer las cosas por mi propio esfuerzo.
36. Me molesta la gente que siempre quiere hacer las cosas bien hechas.
37. La gente debe ser original en los trabajos que hacen.
38. Cuando el trabajo no es para mí, lo hago como quiera.
39. Me impacienta ver trabajadores cogiéndolo suave.
40. Creo que es bueno que mis habilidades y destrezas estén de acuerdo con la clase de trabajo que yo haga.
41. Los mejores trabajos son aquéllos en los que se gana más dinero.
42. El trabajo es una de las formas de ayudar a los demás.
43. Para uno ser un buen empleado necesita tener educación universitaria.
44. Mis intereses, habilidades y rasgos de personalidad deben estar de acuerdo con el trabajo que escoja.
45. En nuestro mundo ocupacional hay necesidad de toda clase de trabajadores.
46. A los jóvenes debe estimulárseles a hacer los trabajos bien hechos.
47. Nuestra sociedad da demasiada importancia a la gente que trabaja.
48. Los maestros deben orientar a los estudiantes hacia los trabajos que mejor pueden realizar.

Sí = estoy de acuerdo

I = indeciso

No = no estoy de acuerdo

49. El estudiante debe tener el mejor conocimiento de sí mismo antes de escoger su vocación.
50. Las pruebas de habilidad general, intereses, aptitudes y de aprovechamiento que se ofrecen en las escuelas tienen relación con la selección vocacional de los estudiantes.
51. El principio de "conócete a tí mismo" tiene una relación estrecha con la decisión vocacional de uno.
52. Uno debe conocer la necesidad futura por cierto tipo de trabajo antes de hacer una decisión vocacional.
53. Me gusta ser trabajador y laborioso.
54. Me repugna ver trabajadores entusiastas y con iniciativa.
55. Los demás me aprecian porque me gusta hacer las cosas bien.
56. Me gusta aprovechar el tiempo haciendo algo productivo.
57. Creo que puedo llegar a tener buenos hábitos de trabajo como los demás empleados.
58. Preferiría hacer un producto que sea tan bueno como el mejor que haya.
59. Preferiría ser un vago a ser una persona de acción.
60. La gente debe ser clasificada de acuerdo a lo que ganan y no de acuerdo al trabajo que realiza.
61. El empleado que gana más dinero es más feliz que el que gana menos.
62. Me gusta realizar trabajos y encomiendas que me reten.
63. Preferiría recibir dinero por el trabajo que haga a recibir aplausos por ello.
64. Preferiría tener a alguien que me haga los trabajos a luchar por hacerlos yo mismo.

Sí = estoy de acuerdo

I = indeciso

No = no estoy de acuerdo

65. Las ocupaciones del campo valen menos que las ocupaciones del pueblo.
66. Me gustaría encontrar una ocupación en donde no se me exija mucho.
67. Prefiriría trabajar lentamente, con gran cuidado y atendiendo detalles a hacer las cosas rápidas, pero sin cuidado.
68. Me gustaría dar con una idea para hacer dinero sin trabajar.
69. El sueldo que uno devenga por el trabajo que hace es importante, pero no es lo más importante.
70. Prefiriría ~~pasar~~ trabajar para ~~realizar~~ hacer varios empleos en vez de conocer uno solo.
71. Prefiriría que otra persona decidiera mi vocación por mí en vez de yo hacer mis propias decisiones.
72. Prefiriría trabajar fuerte para sobresalir en el trabajo, a trabajar lo necesario para que no me boten.
73. Prefiriría un empleo que absorba mis intereses y dedicación a un empleo donde tenga que tomar pocas decisiones.
74. Prefiriría un empleo donde pueda tomar días libres cuando yo quiera a un empleo con normas de trabajo altas.
75. Prefiriría un empleo donde pueda continuar aprendiendo el resto de mi vida a tener un empleo que me mantenga atado.

Estado Libre Asociado de Puerto Rico
 DEPARTAMENTO DEL TRABAJO
 Negociado de Seguridad de Empleo
 Servicio de Empleo de Puerto Rico
 afiliado al
 Servicio de Empleo de Estados Unidos
 San Juan, Puerto Rico

Appendix F

LISTA DE COTEJO DE INTERESES

Nombre _____ Fecha _____

Dirección o Escuela _____

Es importante que nos guste el trabajo que hacemos porque, para tener éxito, debemos sentirnos felices e interesados en el mismo.

Una Lista de Cotejo de Intereses puede ayudarte a determinar qué clase de trabajo te gustaría más hacer. La lista con que vas a trabajar contiene actividades comunes a la mayor parte de las ocupaciones en las distintas industrias de Puerto Rico.

Lee cuidadosamente cada una de las actividades. Marca con un signo de cotejo (✓) en el espacio correspondiente de la columna "SI", aquellas actividades que crees te gustaría realizar. Si no te gustaría realizarlas haz una marca (✓) en la columna "No". Si tienes duda en cuanto a si te gustaría o no la actividad, haz la marca en la columna "?".

Luego de haber marcado todas las actividades, marca de nuevo con otro signo de cotejo (✓) por lo menos aquellas tres que preferirías realizar.

No es necesario que tengas adiestramiento o experiencia en la actividad que vas a marcar; es suficiente con saber si te gustaría o no hacerla. Si marcas en la columna "?" es porque no estás seguro, ya sea porque no conoces la actividad o porque no sabes cómo decidirte.

Recuerda que para cada actividad lo que tienes que hacer es marcar si te gustaría hacerla, si no te gustaría, o si estás en duda.

Estudia el ejemplo que se ofrece a continuación:

	SI	?	NO
Trabajar en un taller de mecánica	_____	_____	_____
Si te gusta la actividad, marcas en la columna "SI", así.....	✓		
Si no te gusta, marcas en la columna "NO", así.....			✓
Si estás indeciso, marcas en la columna "?", así.....	✓		

	SI	?	NO
Dibujar o pintar cuadros de personas u objetos	_____	_____	_____
Crear dibujos artísticos	_____	_____	_____
Acomodar objetos o adornar para lograr un efecto agradable.	_____	_____	_____
Hacer figuras de barro o en piedra.	_____	_____	_____
Tomar fotografías para anuncios.	_____	_____	_____
Diseñar o dibujar modas para trajes.	_____	_____	_____
(0-X1)			
Cantar mediante paga para entretener.	_____	_____	_____
Tocar un instrumento musical.	_____	_____	_____
Componer música o hacer arreglos musicales.	_____	_____	_____
Dirigir una orquesta o grupo musical.	_____	_____	_____
(0-X2)			
Escribir cuentos cortos o libros	_____	_____	_____
Escribir artículos o libros para influir en la opinión pública	_____	_____	_____
Escribir sobre acontecimientos o actividades	_____	_____	_____
Redactar o corregir noticias	_____	_____	_____
Escribir libretos o dramas para radio o televisión	_____	_____	_____
(0-X3)			
Actuar en un drama	_____	_____	_____
Bailar bailes clásicos	_____	_____	_____
Comentar noticias en la radio y la televisión	_____	_____	_____
Anunciar programas de radio y televisión	_____	_____	_____
Jugar baloncesto profesional, pelota u otros deportes	_____	_____	_____
(0-X4)			

	SI	?	NO
Recoger y analizar información acerca de problemas de la comunidad.	_____	_____	_____
Aconsejar personas en relación con sus problemas personales	_____	_____	_____
Entrevistar y aconsejar personas en relación con su trabajo o educación.	_____	_____	_____
Dirigir estudios o investigaciones sobre la opinión pública.	_____	_____	_____
Dirigir estudios o investigaciones sobre problemas económicos.	_____	_____	_____
(0-X6.1)			
Dirigir el tránsito	_____	_____	_____
Hacer cumplir las ordenanzas municipales y las leyes del país.	_____	_____	_____
Dirigir la operación de apagar y evitar fuegos en fábricas.	_____	_____	_____
Inspeccionar máquinas y condiciones de trabajo para evitar accidentes	_____	_____	_____
(0-X6.2)			
Hacer labores de enfermería en hospitales o casas	_____	_____	_____
Hacer pruebas químicas o de laboratorio	_____	_____	_____
Curar animales heridos o enfermos	_____	_____	_____
Preparar medicinas de acuerdo con la receta	_____	_____	_____
Hacer experimentos sobre las propiedades de metales y otros materiales	_____	_____	_____
Hacer trabajo médico de rayos-X	_____	_____	_____
Planear la comida de hospitales, escuelas u hoteles	_____	_____	_____
(0-X7.0)			

	SI	?	NO		SI	?	NO
Enseñar clases a estudiantes	—	—	—	Revisar y preparar estados de cuentas para una compañía	—	—	—
Demostrar a otros cómo jugar nuevos deportes o juegos	—	—	—	Ayudar a personas a utilizar su derecho legal	—	—	—
Seleccionar y clasificar libros y otras publicaciones	—	—	—	Comprar materiales para una tienda grande	—	—	—
(0-X6.0)	—	—	—	(0-X7.1)	—	—	—
Vigilar los bosques	—	—	—	Cambiar cheques y bregar con dinero	—	—	—
Observar e informar las condiciones del tiempo	—	—	—	Llevar los libros de cuentas de un negocio	—	—	—
Explorar y hacer mapas de la capa terrestre para localizar depósitos de gas y de petróleo	—	—	—	Escribir cartas e informes a máquina	—	—	—
(0-X7.3)	—	—	—	Tomar dictado taquigráfico	—	—	—
Planear y diseñar carreteras y puentes	—	—	—	Mantener un inventario de materiales y equipo	—	—	—
Diseñar herramientas, maquinaria y equipo electrónico	—	—	—	(1-X2)	—	—	—
Pilotar un avión para una línea comercial aérea	—	—	—	Manipular una máquina de mimeógrafo	—	—	—
Resolver problemas con rapidez haciendo uso de las matemáticas	—	—	—	Archivar informes en orden alfabético	—	—	—
Instalar maquinaria en una fábrica y planear el proceso de trabajo	—	—	—	Clasificar y distribuir correspondencia	—	—	—
Observar y localizar señales de luces en una pantalla de radar para informar sobre el tránsito aéreo	—	—	—	(1-X4)	—	—	—
(0-X7.4)	—	—	—	Operar un cuadro telefónico	—	—	—
Dibujar planos para herramientas o máquinas	—	—	—	Contestar el teléfono y hacer arreglos para entrevistas	—	—	—
Hacer dibujos detallados a base de especificaciones para edificios	—	—	—	Cobrar a los clientes	—	—	—
Inspeccionar terrenos para determinar sus medidas y límites	—	—	—	Dirigir los clientes a los distintos departamentos de una tienda.	—	—	—
(0-X7.7)	—	—	—	Atender quejas de clientes	—	—	—
				(1-X5.0)	—	—	—

	SI	?	NO		SI	?	NO
Dirigir un grupo de trabajadores	_____	_____	_____	Vender muebles en una tienda	_____	_____	_____
Supervisar el personal de una oficina	_____	_____	_____	Vender seguros o bienes raíces	_____	_____	_____
Organizar y dirigir las operaciones de una fábrica	_____	_____	_____	Vender casas y equipo de construcción	_____	_____	_____
Supervisar un grupo de vendedores (0-X8)	_____	_____	_____	Demstrar artículos de belleza para la venta	_____	_____	_____
Manipular máquinas en una oficina, tales como calculadoras y máquinas de sumar	_____	_____	_____	Visitar casas para hacer demostraciones y vender productos	_____	_____	_____
Revisar documentos para corregir errores, calcular gastos y comisiones (1-X1)	_____	_____	_____	Hacer contacto con el comprador de un mercado para venderles mercancía (1-X5.5)	_____	_____	_____
Entrevistar personas para recoger información para censos	_____	_____	_____	Vender entradas y dar cambio en un teatro	_____	_____	_____
Interrogar a automovilistas para recoger información para la planificación de carreteras	_____	_____	_____	Repartir productos en una ruta fija	_____	_____	_____
Modelar ropa para clientes (1-X5.9)	_____	_____	_____	Vender mercancía en una tienda de misceláneas	_____	_____	_____
Cocinar en un restaurante	_____	_____	_____	Dirigir una excursión y actuar como guía	_____	_____	_____
Planear y preparar comidas en una casa privada	_____	_____	_____	Vender gasolina y aceite en un garaje (1-X5.7)	_____	_____	_____
Hornear bizcochos, galletas y otra repostería para clientes	_____	_____	_____	Pescar grandes cantidades de peces y venderlo	_____	_____	_____
Ordenar provisiones para un hotel (2-X1)	_____	_____	_____	Trabajar a bordo de remolcadores, lanchones y botes	_____	_____	_____
Encargarse de un salón de juegos para niños	_____	_____	_____	Operar un criadero de peces (x-X8)	_____	_____	_____
Organizar juegos y lecturas para niños	_____	_____	_____	Servir de guía en cacerías o viajes de pesca	_____	_____	_____
Cuidar y alimentar niños en un hogar infantil diurno o un hospital infantil (2-X3)	_____	_____	_____	Mantener vigilancia para evitar fuegos en bosques	_____	_____	_____
				Aserrar, podar y cortar árboles en los bosques (3-X9)	_____	_____	_____
				Construir y reparar máquinas, piezas y herramientas	_____	_____	_____
				Trabajar con taladros y tornos para cortar metal y moldear metales	_____	_____	_____

	NO	?	SI		NO	?	SI
Poner mesas y servir comidas y bebidas	_____	_____	_____	Pulir lentes para telescopios, cámaras y microscopios	_____	_____	_____
Lavar cabezas, arreglar uñas, dar masajes faciales	_____	_____	_____	Manipular máquinas para aserrar y moldear madera (4-X2.0)	_____	_____	_____
Dirigir los clientes a las mesas en un restaurante	_____	_____	_____	Engrasar, ajustar y reparar máquinas	_____	_____	_____
Servir de camarero en un avión durante el vuelo	_____	_____	_____	Desarmar y reparar motores de automóviles	_____	_____	_____
Manipular un ascensor de pasajeros (2-X5)	_____	_____	_____	Dar servicio de reparación de máquinas de escribir, de calcular y de sumar (4-X2.1)	_____	_____	_____
Sembrar, cultivar y recoger cosechas	_____	_____	_____	Manipular telares de tejidos o máquinas de hacer medias	_____	_____	_____
Críar y cuidar ganado, cerdos, caballos y pollos	_____	_____	_____	Operar una imprenta	_____	_____	_____
Cultivar vegetales para el mercado	_____	_____	_____	Conducir un camión o una guagua	_____	_____	_____
Plantar y cuidar flores, gramíneas y arbustos (3-X1)	_____	_____	_____	Operar grúas y palas mecánicas para mover material (4-X2.4)	_____	_____	_____
Pintar, enyesar o empapelar casas o edificios	_____	_____	_____	Construir y probar equipo electrónico	_____	_____	_____
Poner o ajustar tuberías y plumas de agua	_____	_____	_____	Instalar y reparar cuadros telefónicos	_____	_____	_____
Poner ladrillos para la construcción de paredes y chimeneas	_____	_____	_____	Reparar radios y televisores (4-X6.1)	_____	_____	_____
Construir casas u otras estructuras de madera (4-X6.2)	_____	_____	_____	Proteger la propiedad contra fuego, robo o daños	_____	_____	_____
Armar y reparar artículos como relojes y cámaras	_____	_____	_____	Almacenar explosivos	_____	_____	_____
Cortar, coser y adaptar artículos de tela, cuero o piel	_____	_____	_____	Servir de portero en un establecimiento e indicar la entrada correcta a los visitantes (6-X2.2)	_____	_____	_____
Hacer o reparar muebles o gabinetes	_____	_____	_____	Inspeccionar y probar la calidad de artículos por medio del gusto, visión y audición	_____	_____	_____
Cortar y modelar vidrio, piedra y otros artículos pequeños para joyería	_____	_____	_____	Inspeccionar artículos usando instrumentos sencillos de medir	_____	_____	_____
Usar instrumentos de precisión para inspeccionar defectos en materiales y productos (4-X6.3)	_____	_____	_____				

	NO	?	SI			NO	?	SI
Dibujar o marcar letreros y anuncios	_____	_____	_____	Clasificar artículos por tamaño y color (6-2.3)	_____	_____	_____	_____
Colocar a mano tipos de imprenta para imprimir	_____	_____	_____	Levantar y mover objetos mediante pequeñas grúas pegadas a camiones	_____	_____	_____	_____
Manipular máquinas que colocan los tipos de imprenta	_____	_____	_____	Manipular máquinas automáticas de metal	_____	_____	_____	_____
Desarrollar o imprimir retratos (4-X6.5)	_____	_____	_____	Manipular máquinas para llenar botellas, jarros, o latas con líquidos (6-X2.4)	_____	_____	_____	_____
Hacer pan, bizcochos y otros productos de repostería	_____	_____	_____	Atender máquinas que mezclan drogas e alimentos	_____	_____	_____	_____
Operar hornillas y hornos para calentar y derretir metales	_____	_____	_____	Manipular equipo que refinan productos de petróleo	_____	_____	_____	_____
Echar o sumergir metales calientes en moldes	_____	_____	_____	Operar una máquina de mezclar concreto (6-X2.6)	_____	_____	_____	_____
Mezclar soluciones para materiales plásticos (4-X5.6)	_____	_____	_____	Soldar piezas de metal usando una máquina automática de soldar	_____	_____	_____	_____
Manipular máquinas eléctricas de coser	_____	_____	_____	Barrenar con una perforadora de mano en mineral o roca	_____	_____	_____	_____
Empacar frutas y vegetales para el mercado	_____	_____	_____	Enderezar guardafangos doblados y carrocerías de un auto (6-X4.2)	_____	_____	_____	_____
Unir piezas de metal con herramientas de mano	_____	_____	_____	Mezclar pinturas de acuerdo con fórmulas	_____	_____	_____	_____
Enrollar alambres eléctricos y armaduras (6-X4.3)	_____	_____	_____	Atender tanques para teñir o decolorar cuero	_____	_____	_____	_____
Suplir material a una máquina para cortar o moldear productos metálicos	_____	_____	_____	Operar equipo que hace o prepara papel (6-X4.6)	_____	_____	_____	_____
Atender máquinas usadas en carpintería para cortar y taladrar	_____	_____	_____					
Pulir mármol o granito por medio de máquinas	_____	_____	_____					
Usar máquinas para prensar, estirar o plegar artículos de tela o cuero (6-X4.4)	_____	_____	_____					

NO ? SI

- ' Entregar telegramas en bi- _____
- ' cicleta _____
- ' Repartir hojas sueltas de _____
- ' anuncios por las casas _____
- ' Limpiar y brillar zapatos _____
- ' (6-X6.1) _____
- ' Lavar platos y cubiertos _____
- ' a máquina _____
- ' Amontonar mazos de yerba, _____
- ' maíz y caña _____
- ' Servir de portamiras y _____
- ' poner puntos con un _____
- ' grupo de agrimensores _____
- ' (6-X6.6) _____

AHORA, VUELVE ATRAS Y HAZLE OTRA MARCA A LAS ACTIVIDADES
QUE MAS TE GUSTARIA HACER (POR LO MENOS A TRES)

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